This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

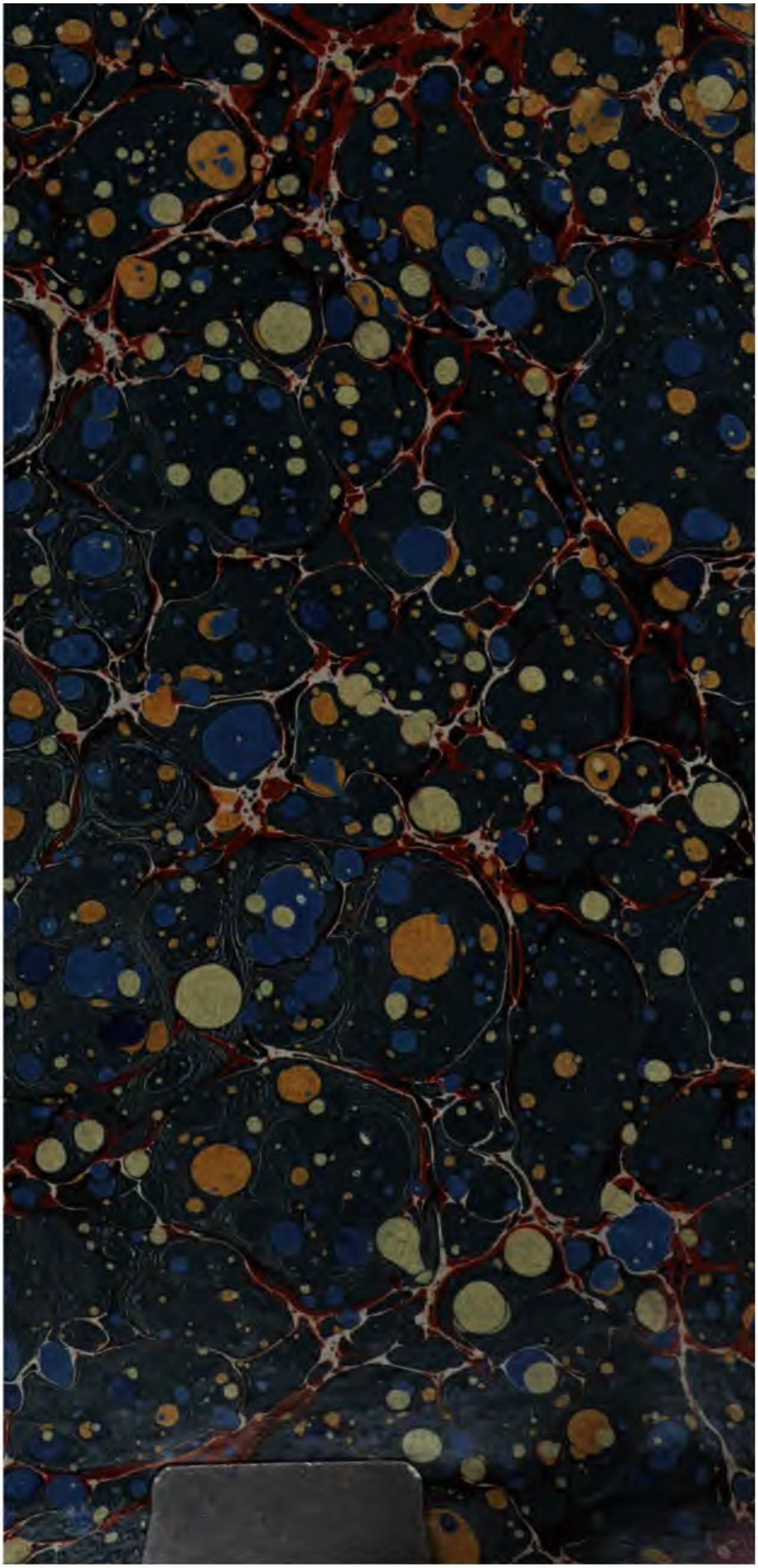
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

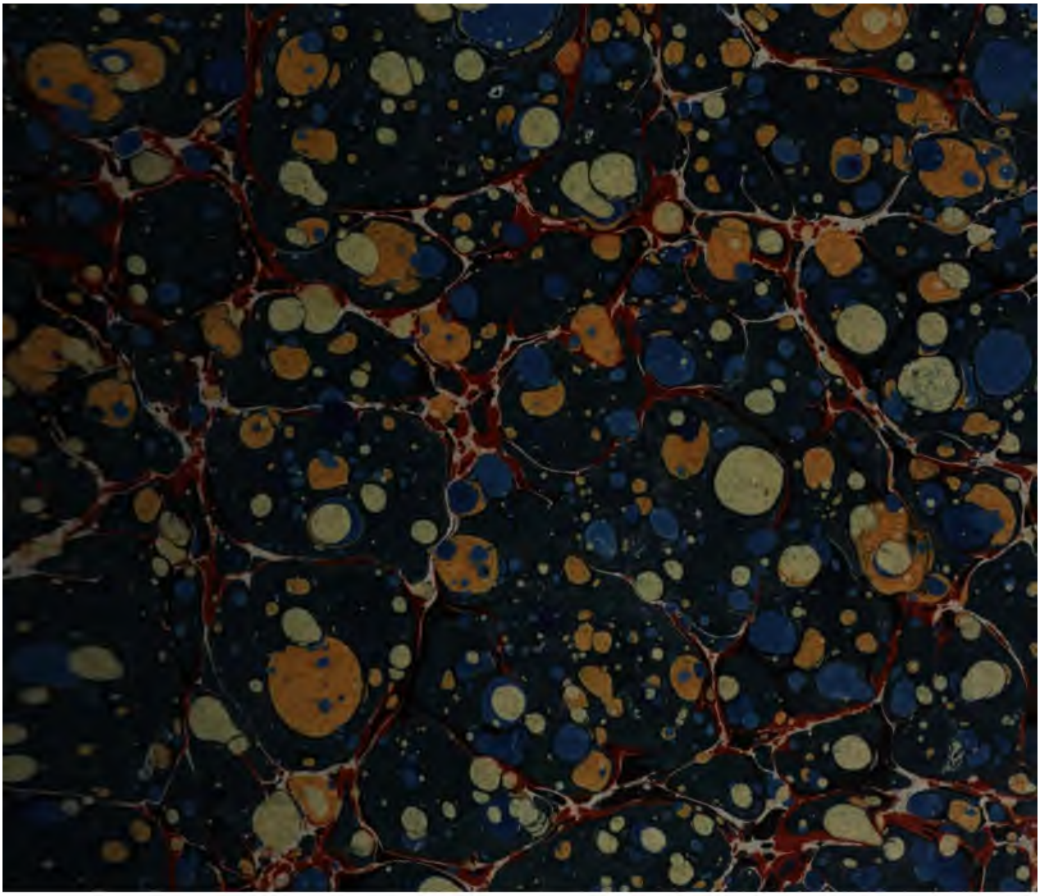
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`





3489- 131627

Stanford University
JUN 8
1906

SMITHSONIAN MISCELLANEOUS COLLECTIONS

—1376—

LIST
OF
PUBLICATIONS
OF THE
SMITHSONIAN INSTITUTION

1846-1903

PART I. COMPLETE LIST
PART II. AVAILABLE FOR DISTRIBUTION

BY

WILLIAM JONES RHEES

WASHINGTON CITY
1903

NOV
15
1904

LELAND STANFORD JUNIOR
UNIVERSITY

SMITHSONIAN

MISCELLANEOUS COLLECTIONS

VOL. XLIV

"EVERY MAN IS A VALUABLE MEMBER OF SOCIETY WHO BY HIS OBSERVATIONS, RESEARCHES, AND EXPERIMENTS PROCURES KNOWLEDGE FOR MEN."—SMITHSON.

(No. 1375)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
1904

UNIVERSITY
LELAND STANFORD, JUNIOR
LIBRARY

ADVERTISEMENT.

The present series, entitled "Smithsonian Miscellaneous Collections," is intended to embrace all the publications issued directly by the Smithsonian Institution in octavo form; those in quarto constituting the "Smithsonian Contributions to Knowledge." The quarto series includes memoirs, embracing the records of extended original investigations and researches, resulting in what are believed to be new truths, and constituting positive additions to the sum of human knowledge. The octavo series is designed to contain reports on the present state of our knowledge of particular branches of science; instructions for collecting and digesting facts and materials for research; lists and synopses of species of the organic and inorganic world; museum catalogues; reports of explorations; aids to bibliographical investigations, etc., generally prepared at the express request of the Institution, and at its expense.

In the Smithsonian Contributions to Knowledge, as well as in the present series, each article is separately paged and indexed, and the actual date of its publication is that given on its special title-page, and not that of the volume in which it is placed. In many cases works have been published and largely distributed, years before their combination into volumes.

S. P. LANGLEY,
Secretary S. I.

84863

TABLE OF CONTENTS.

ARTICLE I. (1372.) THE INTERNATIONAL EXCHANGE SERVICE OF THE SMITHSONIAN INSTITUTION. 1902. Pp. 4.

ARTICLE II. (1374.) INDEX TO THE LITERATURE OF THORIUM, 1817-1902. BY CAVALIER H. JOÜET. 1903. Pp. 154.

ARTICLE III. (1376.) LIST OF PUBLICATIONS OF THE SMITHSONIAN INSTITUTION, 1846-1903. BY WILLIAM JONES RHEES. 1903. Pp. vii, 99.

ARTICLE IV. (1417.) PHYLOGENY OF FUSUS AND ITS ALLIES. BY AMADEUS W. GRABAU. 1904. Pp. iii, 192. Plates I-XVIII.

ARTICLE V. (1440.) A SELECT BIBLIOGRAPHY OF CHEMISTRY, 1492-1902. BY HENRY CARRINGTON BOLTON. SECOND SUPPLEMENT. 1904. Pp. iii, 462.

SMITHSONIAN MISCELLANEOUS COLLECTIONS

—1376—

LIST

OF

PUBLICATIONS

OF THE

SMITHSONIAN INSTITUTION

1846-1903

PART I. COMPLETE LIST
PART II. AVAILABLE FOR DISTRIBUTION

BY

WILLIAM JONES RHEES

WASHINGTON CITY
1903

H

LELAND STANFORD JUNIOR UNIVERSITY
LIBRARY

PRESS OF
WILLIAMS & WILKINS COMPANY
BALTIMORE

The publications of the Smithsonian Institution are, 1, CONTRIBUTIONS TO KNOWLEDGE; 2, MISCELLANEOUS COLLECTIONS; 3, ANNUAL REPORTS; 4, SPECIAL PAPERS.

No sets of these are for sale or distribution, as most of the volumes are out of print.

The volumes of Contributions and of Collections are distributed only to designated public libraries and learned institutions in this country and abroad. A small edition of the papers in these two series is printed separately for sale or exchange.

The Smithsonian Reports are distributed by the Institution to libraries throughout the world; may be had by purchase at cost from the Superintendent of Documents, Washington City, *and may also generally be obtained free of charge from the applicant's Member of Congress.*

The papers printed in the Annual Reports are published separately for free distribution. The prices affixed to them in this list are given as a basis for exchange.

As the number of copies of Smithsonian publications is limited and entirely inadequate even to supply the demand from libraries, *an applicant should state explicitly the ground of his request.*

Publications should be ordered by the **serial number** given in this list.

Remittances should be made payable to "Smithsonian Institution, Washington, D. C."

Applications for a public library should state the number of volumes in the library, date of establishment, and have the endorsement of a Member of Congress.

For reports and other publications of the Bureau of American Ethnology, application should be made to the Bureau.

The Reports of the NATIONAL MUSEUM, of the BUREAU OF AMERICAN ETHNOLOGY, of the AMERICAN HISTORICAL ASSOCIATION and of the DAUGHTERS OF THE AMERICAN REVOLUTION are for sale by the *Superintendent of Documents, Washington, D. C.*

CONTENTS.

PART I.

PAGE
Complete List of Smithsonian Publications, 1846–1903 1
Tables 66
  Contributions to Knowledge 66
  Miscellaneous Collections 67
  Annual Reports 68
Price List of United States Public Documents 71
  Smithsonian Report 71
    History 71
  National Museum:
    Report 71
    Proceedings 72
    Special Bulletin 72
  Bureau of American Ethnology 72
  American Historical Association 72
  Astrophysical Observatory 72
  Daughters of American Revolution 72

PART II.

Classified List 75
  Aeronautics 75
  Anatomy 75
  Anthropology 77
  Archæology 77
  Astronomy 79
  Astrophysics 80
  Bibliography 80
  Biography 81
  Biology 82
  Botany 83
  Chemistry 84
  Electricity 85
  Ethnology 77
  Forestry 83
  Geography 86
  Geology 87
  History 88
  Magnetism 85
  Mathematics 90
  Medicine 75

Classified List—*Continued.*

PAGE
Meteorology 90
Mineralogy 87
Palæontology 94
Philology 92
Physics 92
Physiology 75
Psychology 94
Sanitary Science 75
Surgery 75
Zoölogy—General 94
    Birds 95
    Fishes 95
    Insects 95
    Mammals 96
    Mollusks 96
    Radiates 96
    Reptiles 96
Miscellaneous 97
Hodgkins Fund Publications 99

PART I

COMPLETE
LIST OF SMITHSONIAN PUBLICATIONS

1846 TO 1903

LIST OF SMITHSONIAN PUBLICATIONS.

1846 to 1903.

S. C. = Smithsonian Contributions to Knowledge.
M. C. = Miscellaneous Collections.
R. = Annual Reports.
M. R. = Museum Reports.

Publications where no price is given *are no longer available for distribution;* those with price attached *are available.*

The *asterisk* denotes publications not belonging to a regular series of Smithsonian Contributions, Miscellaneous Collections or Annual Reports.

No	Author.	Title.	Size or Series.	Pages.	Date.	Price.
A		Journal of Regents,	8vo.*	32	1846	
B		Report of Organization Committee,	8vo.*	32	1847	
C		Digest of Act of Congress,	8vo.*	8	1847	
D	**Dallas, G. M.**	Address at Laying Corner Stone,	8vo.*	8	1847	
E	**Henry, Jos.**	Exposition of Bequest,	8vo.*	8	1847	
F		First Report of Secretary,	R. 1848	48	1848	
G		First Report of the Institution,	R. 1846	38	1847	
H		(Second) Report of Institution,	R. 1847	208	1848	
I		Third Report of Institution,	R. 1848	64	1849	
J		Programme of Organization,	4to.*	4	1847	
K		Correspondence, Squier & Davis,	8vo.*	8	1847	
L		First Report of Organization Committee,	8vo.*	8	1846	
M		Reports of Institution up to Jan. 1849,	8vo.*	72	1849	
N		Officers, Regents, Act, &c.,	8vo.*	14	1846	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
O		Act to establish Smithsonian Institution,	8vo.*	8	1846	
P	**Owen, R. D.**	Hints on Public Architecture,	4to.*	137	1849	
Q		Check List of Periodicals,	4to.*	28	1853	
		Shea's Library of Aboriginal American Linguistics:				
R	**Sitjar, B.**	Vocabulary of San Antonio Mission, California Indians,		76	1861	
S	**Cuesta, F. F. A.**	Vocabulary of Mutsun Language of California,		96	1862	
T	**Cuesta, F. F. A.**	Grammar of the Mutsun Language,		56	1861-62	
U	**Pandosy, M. C.**	Grammar and Dictionary of Yakama Language,		63	1862	
V	**Bruyas, J.**	Radical Words of Mohawk Language,		127	1862	
W	**Smith, B.**	Grammar of the Pima or Névome Language,		129	1862	
X	**Gibbs, G.**	Vocabulary of the Chinook Language,		23	1863	
Y	**Gibbs, G.**	Vocabularies of the Clallam and Lummi Languages,		40	1863	
Z	**Maillard, A., & Bellenger, J. M.**	Grammar of the Mikmaque Language,		101	1864	
AA		Animals desired for the National Zoölogical Park,		16	1899	
AB	**Bolton, H. C.**	Smithsonian Institution, Origin, Growth and Activities,		30	1896	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1	**Squier, E. G. and Davis, E. H.**	Ancient Monuments of Mississippi Valley,	S.C. i	329	1848	
2		Smithsonian Contributions to Knowledge, Vol. I.	S.C. i	345	1848	
3	**Walker, S. C.**	Researches, Planet Neptune,	S.C. ii	60	1849	
4	**Walker, S. C.**	Ephemeris of Neptune for 1848,	S.C. ii	8	1848	
5	**Walker, S. C.**	Ephemeris of Neptune for 1849,	S.C. ii	32	1849	
6	**Walker, S. C.**	Ephemeris of Neptune for 1850,	S.C. ii	10	1850	
7	**Walker, S. C.**	Ephemeris of Neptune for 1851,	S.C. ii	10	1850	
8	**Downes, John**	Occultations in 1848,	4to.*	12	1848	
9	**Downes, John**	Occultations in 1849,	4to.*	24	1848	
10	**Downes, John**	Occultations in 1850,	4to.*	26	1849	
11	**Downes, John**	Occultations in 1851,	S.C. ii	26	1850	
12	**Lieber, Francis**	Vocal Sounds of Laura Bridgeman,	S.C. ii	32	1850	
13	**Ellet, Charles**	Physical Geography of U. S.,	S.C. ii	64	1850	
14	**Gibbes, R. W.**	Memoir on Mosasaurus,	S.C. ii	14	1850	
15	**Squier, E. G.**	Aboriginal Monuments of N. Y.,	S.C. ii	192	1850	
16	**Agassiz, Louis**	Classification of Insects,	S.C. ii	28	1850	
17	**Hare, Robert**	Explosiveness of Nitre,	S.C. ii	20	1850	
18	**Gould, B. A., Jr.**	Discovery of Neptune,	8vo.*	56	1850	
19	**Guyot, A.**	Directions for Meteorological Observations,	8vo.*	40	1850	
20	**Bailey, J. W.**	Microscopic Examination of Soundings,	S.C. ii	16	1851	.25
21		Annual Report of Smithsonian Institution for 1849,	R. 1849	272	1850	
22	**Gray, Asa**	Plantæ Wrightianæ. Part I,	S.C. iii	146	1852	
23	**Bailey, J. W.**	Microscopic Observations in S. Carolina, Georgia, and Florida,	S.C. ii	48	1851	
24	**Walker, S. C.**	Ephemeris of Neptune, 1852. Appendix I,	S.C. iii	10	1853	
25	**Jewett, Chas. C.**	Public Libraries of United States,	8vo.	210	1851	.25
26		Smithsonian Contributions to Knowledge. Vol. II,	S.C. ii	572	1851	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
27	**Booth, J.C. and Morfit, C.**	Improvements in Chemical Arts,	M.C. II	216	1852	.25
28		Annual Report of Smithsonian Institution for 1850,	R. 1850	326	1851	
29	**Downes, John**	Occultations in 1852,	S.C. III	34	1851	
30	**Girard, Chas.**	Fresh Water Fishes of N. America.	S.C. III	80	1851	
31	**Guyot, A.**	Meteorological Tables,	M.C. I	212	1852	
32	**Harvey, Wm. H.**	Marine Algæ of North America. Part I.	S.C. III	152	1852	
33	**Davis, Chas. H.**	Law of Deposit of Flood Tide,	S.C. III	14	1852	.25
34	**Baird, S. F.**	Directions for Collecting Specimens,	M. C. II	40	1859	
35	**Locke, John**	Observations on Terrestrial Magnetism,	S.C. III	36	1852	
36	**Secchi, A.**	Researches on Electrical Rheometry,	S.C. III	60	1852	.50
37	**Whittlesey, Ch.**	Ancient Works in Ohio,	S.C. III	20	1851	
38		Smithsonian Contributions to Knowledge. Vol. III,	S.C. III	562	1852	
39		Smithsonian Contributions to Knowledge. Vol. IV,	S.C. IV	370	1852	
40	**Riggs, S. R.**	Dakota Grammar and Dictionary,	S.C. IV	358	1852	
41	**Leidy, Joseph**	Extinct American Ox,	S.C. V	20	1852	
42	**Gray, Asa**	Plantæ Wrightianæ. Part II,	S.C. V	120	1853	
43	**Harvey, Wm. H.**	Marine Algæ of North America. Part II,	S.C. V	260	1853	
44	**Leidy, Joseph**	Flora and Fauna within Living Animals,	S.C. V	68	1853	
45	**Wyman, Jeffries**	Anatomy of Rana Pipiens,	S.C. V	52	1853	
46	**Torrey, John**	Plantæ Fremontianæ,	S.C. VI	24	1853	
47	**Jewett, Chas. C.**	Construction of Catalogues of Libraries.	8vo.*	108	1853	.25
48	**Girard, Charles**	Bibliographia Americana Historico Naturalis,	8vo.*	64	1852	
49	**Baird, S. F. and Girard, C.**	Catalogue of Serpents,	M.C. II	188	1853	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
50	**Stimpson, Wm.**	Marine Invertebrata of Gr. Manan,	S.C. vi	68	1853	1.00
51		Annual Report of Smithsonian Institution for 1851,	R. 1851	104	1852	
52	**Coffin, Jas. H.**	Winds of the Northern Hemisphere,	S.C. vi	200	1853	
53	**Stanley, J. M.**	Catalogue of Portraits of Indians,	M.C. ii	76	1852	
54	**Downes, John**	Occultations in 1853,	S.C. vi	36	1853	
55		Smithsonian Contributions to Knowledge. Vol. V,	S.C. v	534	1853	
56		Smithsonian Contributions to Knowledge. Vol. VI,	S.C. vi	484	1854	
57		Annual Report of Smithsonian Institution for 1852,	R. 1852	96	1853	
58	**Leidy, Joseph**	Ancient Fauna of Nebraska,	S.C. vi	126	1853	
59	**Chappelsmith, J.**	Tornado in Indiana,	S.C. vii	12	1855	.20
60	**Torrey, John**	Batis Maritima,	S.C. vi	8	1853	.20
61	**Torrey, John**	Darlingtonia Californica,	S.C. vi	8	1853	
62	**Melsheimer, F. E.**	Catalogue of Coleoptera,	8vo.*	190	1853	.50
63	**Bailey, J. W.**	New Species of Microscopic Organisms,	S.C. vii	16	1854	
64	**Baird, S. F.**	List of Foreign Correspondents of Smithsonian Institution,	8vo.*	16	1856	
65	**Henry, Joseph**	Registry of Periodical Phenomena,	folio,*	4	1854	
66	**Davis, C. H.**	Annular Eclipse, May 26, 1854,	8vo.*	14	1854	
67		Annual Report of Smithsonian Institution for 1853,	R. 1853	310	1854	
68	**Mitchell, B. R. and Turner, W. W.**	Vocabulary of Jargon of Oregon,	8vo.*	22	1853	
69	**Baird, S. F.**	List of American Correspondents of Smithsonian Institution,	8vo.*	16	1853	
70	**Lapham, I. A.**	Antiquities of Wisconsin,	S.C. vii	108	1855	
71	**Haven, S. F.**	Archæology of the United States,	S.C. viii	172	1856	
72	**Leidy, Joseph**	Extinct Sloth Tribe of N. America,	S.C. vii	70	1855	1.00
73	**Baird, S. F.**	Publications of Societies in Smithsonian Library,	S.C. vii	40	1855	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
74	**Rhees, Wm. J.**	Catalogue of Smithsonian Publications,	M.C. v	52	1862	
75		Annual Report of Smithsonian Institution for 1854,	R. 1854	464	1855	
76		Smithsonian Contributions to Knowledge. Vol. VII,	S.C. vii	260	1855	
77		Annual Report of Smithsonian Institution for 1855,	R. 1855	440	1856	
78		Smithsonian Contributions to Knowledge. Vol. VIII,	S.C. viii	566	1856	
79	**Runkle, J. D.**	Tables for Planetary Motion,	S.C. ix	64	1856	.25
80	**Alvord, Benj.**	Tangencies of Circles and Spheres,	S.C. viii	16	1856	.25
81	**Olmsted, D.**	Secular Period of Aurora Borealis,	S.C. viii	52	1856	
82	**Jones, Joseph**	Investigations, Amer. Vertebrata,	S.C. viii	150	1856	
83	**Meech, L. W.**	Relative Intensity of Heat and Light of the Sun,	S.C. ix	58	1856	.25
84	**Force, Peter**	Auroral Phenomena in North Latitudes,	S.C. viii	122	1856	
85	**Baird, S. F.**	Publications of Societies in Smithsonian Library. Part II,	S.C. viii	38	1856	
86	**Mayer, Brantz**	Mexican History and Archæology,	S.C. ix	36	1856	
87	**Coffin, Jas. H.**	Psychrometrical Tables,	M.C. i	20	1856	
88	**Gibbs, W. and Genth, F. A.**	Ammonia Cobalt Bases,	S.C. ix	72	1856	.50
89	**Brewer, T. M.**	North American Oölogy. Part I,	S.C. xi	140	1857	
90	**Hitchcock, E.**	Illustrations of Surface Geology,	S.C. ix	164	1857	
91		Annual Report of Smithsonian Institution for 1856.	R. 1856	468	1857	
92		Smithsonian Contributions to Knowledge. Vol. IX,	S.C. ix	482	1857	
93	**Henry, Joseph**	Meteorological Observations for 1855,	8vo.*	118	1857	
94	**Runkle, J. D.**	Asteroid Supplement to New Tables. (See No. 79),	S.C. ix	72	1857	.25
95	**Harvey, Wm. H.**	Marine Algæ of North America. Part III,	S.C. x	142	1858	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
96	**Harvey, Wm. H.**	Marine Algæ of North America, (3 parts complete),	S.C. iii, v, x	568	1858	
97	**Kane, E. K.**	Magnetic Observations in the Arctic Seas,	S.C. x	72	1859	.50
98	**Bowen, T. J.**	Yoruba Grammar and Dictionary,	S.C. x	232	1858	2.00
99		Smithsonian Contributions to Knowledge. Vol. X,	S.C. x	462	1858	
100	**Gillis, J. M.**	Eclipse of the Sun, Sept. 7, 1858,	S.C. xi	22	1859	.10
101	**Hill, Thomas**	Map of Solar Eclipse, Mar. 15, 1858,	8vo.*	8	1858	
102	**Osten Sacken, C. R.**	Catalogue of Diptera of North America,	M.C. iii	112	1858	
103	**Caswell, A.**	Meteorological Observations, Providence, R. I.,	S.C. xii	188	1860	.50
104	**Kane, E. K.**	Meteorological Observations in Arctic Seas,	S.C. xi	120	1859	
105	**Baird, S. F.**	Catalogue of North American Mammals,	4to.*	22	1857	
106	**Baird, S. F.**	Catalogue of N. American Birds,	4to.*	42	1858	
107		Annual Report of Smithsonian Institution for 1857,	R. 1857	438	1858	
108	**Baird, S. F**	Catalogue of N. American Birds,	M.C. ii	24	1859	
109		Annual Report of Smithsonian Institution for 1858,	R. 1858	448	1859	
110		Annual Report of Smithsonian Institution for 1859,	R. 1859	450	1860	
111		Smithsonian Contributions to Knowledge. Vol. XI,	S.C. xi	506	1859	
112		Smithsonian Contributions to Knowledge. Vol. XII,	S.C. xii	540	1860	
113	**Bache, A. D.**	Magnetic and Meteorological Observations at Girard Coll. Pt. I,	S.C. xi	22	1859	.15
114	**Sonntag, A.**	Terrestrial Magnetism in Mexico,	S.C. xi	92	1859	.25
115	**Henry, Joseph**	Report on Invention of Electro-Magnetic Telegraph,	M.C. ii	40	1861	.05
116	**Rhees, Wm. J.**	List of Public Libraries, &c.,	8vo.*	84	1859	
117	**Henry, Joseph**	Catalogue of Publications, &c., in Smithsonian Library,	M.C. iii	264	1859	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
118	**Morris, John G.**	Catalogue of Lepidoptera of North America,	M.C. III	76	1860	
119	**Whittlesey, Ch.**	Fluctuations of Level in N. A. Lakes,	S.C. XII	28	1860	.25
120	**Hildreth, S. P. and Wood, J.**	Meteorological Observations at Marietta, O.,	S.C. XVI	52	1867	.25
121	**Bache, A. D.**	Magnetic and Meteorological Observations at Girard Coll. Part II,	S.C. XIII	28	1862	.15
122		Smithsonian Miscellaneous Collections. Vol. I,	M.C. I	738	1862	
123		Smithsonian Miscellaneous Collections. Vol. II,	M.C. II	715	1862	
124		Smithsonian Miscellaneous Collections. Vol. III,	M.C. III	772	1862	
125		Smithsonian Miscellaneous Collections. Vol. IV,	M.C. IV	762	1862	
126	**Le Conte, J. L.**	Coleoptera of Kansas and New Mexico.	S.C. XI	64	1859	.25
127	**Loomis, E.**	Storms in Europe and America, in December, 1836,	S.C. XI	28	1860	.25
128	**Lea, Carpenter, and others.**	Check List of Shells in N. America,	M.C. II	52	1860	
129	**Kane, E. K.**	Astronomical Observations in the Arctic Seas,	S.C. XII	56	1860	.25
130	**Kane, E. K.**	Tidal Observations in the Arctic Seas,	S.C. XIII	90	1860	.25
131	**Smith, N. D.**	Meteorological Observations in Arkansas, from 1840 to 1859,	S.C. XII	96	1860	.25
132	**Bache, A. D.**	Magnetic and Meteorological Observations at Girard College. Part III,	S.C. XIII	16	1862	.15
133	**Morris, John G.**	Synopsis of Lepidoptera of North America. Part I,	M.C. IV	386	1862	.50
134	**Hagen, H.**	Synopsis of Neuroptera of North America,	M.C. IV	368	1861	
135	**Mitchell, S. W.**	Venom of the Rattlesnake,	S.C. XII	156	1860	
136	**Le Conte, J. L.**	Classification of Coleoptera of N. America. Part I,	M.C. III	312	1862	
137	**Henry, Joseph**	Circular to Officers of Hudson's Bay Co.,	M.C. II, VIII	6	1860	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
138	**Morgan, L. H.**	Circular as to Degrees of Relationship,	M.C. ii	34	1860	.02
139	**Newton, Alfred**	Collecting Nests and Eggs of North American Birds,	M.C. ii	22	1860	
140	**Le Conte, J. L.**	List of Coleoptera of North America. Part I,	M.C. vi	82	1866	.25
141	**Loew, H. and Osten Sacken**	Monographs of Diptera. Part I,	M.C. vi	246	1862	.50
142	**Binney, W. G.**	Bibliography of North American Conchology. Part I,	M.C. v	658	1863	2.00
143	**Binney, W. G.**	Land and Fresh Water Shells of North America. Part II,	M.C. vii	172	1865	
144	**Binney, W. G.**	Land and Fresh Water Shells of North America. Part III,	M.C. vii	128	1865	
145	**Prime, Temple**	Monograph of American Corbiculadæ,	M.C. vii	92	1865	
146	**M'Clintock, F. L.**	Meteorological Observations in the Arctic Seas,	S.C. xiii	164	1862	.50
147		Annual Report of Smithsonian Institution for 1860,	R. 1860	448	1861	
148	**Henry, Joseph**	Directions for Meteorological Observations,	M.C. i	72	1860	
149		Annual Report of Smithsonian Institution for 1861,	R. 1861	464	1862	
150		Annual Report of Smithsonian Institution for 1862,	R. 1862	446	1863	
151		Smithsonian Contributions to Knowledge. Vol. XIII,	S.C. xiii	558	1863	
152	**Carpenter, P. P.**	Lectures on Mollusca,	R. 1860	140	1861	
153	**Guyot, A.**	Tables, Meteorological and Physical,	M.C. i	638	1859	
154	**Baird, S. F.**	List of Foreign Correspondents of Smithsonian Institution,	M.C. v	56	1862	
155	**Whittlesey, Ch.**	Ancient Mining on Lake Superior,	S.C. xiii	34	1863	
156	**Egleston, T.**	Catalogue of Minerals,	M.C. vii	56	1863	
157	**Henry, Jos. and Coffin, J. H.**	Results of Meteorological Observations from 1854 to 1859,	4to.*	1270	1861	
158		Smithsonian Miscellaneous Collections. Vol. V,	M.C. v	774	1864	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
159	**Mitchell, S. W. and Morehouse G. R.**	Anatomy and Physiology of Respiration in Chelonia,	S.C. XIII	50	1863	.50
160	**Gibbs, G.**	Instructions for Ethnology and Philology,	M.C. VII	56	1863	
161	**Gibbs, G.**	Dictionary of the Chinook Jargon,	M.C. VII	60	1863	.10
162	**Bache, A. D.**	Magnetic and Meteorological Obs. at Girard College. Pts. IV, V, VI,	S.C. XIII	78	1862	.25
163	**Uhler, P. R.**	Circular on History of Grasshoppers,-	M.C. II	4	1860	
164	**Baird, S. F.**	Smithsonian Museum Miscellanea,	M.C. VIII	88	1862	
165	**Allen, H.**	Monograph of the Bats of North America,	M.C. VII	110	1864	
166	**Bache, A. D.**	Magnetic Survey of Pennsylvania,	S.C. XIII	88	1863	.50
167	**Le Conte, J. L.**	New Species of North American Coleoptera. Part I,	M.C. VI	180	1866	.50
168	**Baird, S. F.**	Circular Relative to Birds from Middle and South America,	M.C. VIII	2	1863	.02
169		Smithsonian Miscellaneous Collections. Vol. VI,	M. C. VI	888	1867	
170	**Gibbs, George**	Comparative Vocabulary,	4to.*	20	1863	
171	**Loew, H.**	Monograph of the Diptera of North America. Part II,	M.C. VI	372	1864	
172	**Meek, F. B. and Hayden, F. V.**	Palæontology of the Upper Missouri. Part I,	S.C. XIV	158	1865	
173	**Dean, John**	Gray Substance of the Medulla Oblongata,	S.C. XVI	80	1864	.75
174	**Binney, W. G.**	Bibliography of North American Conchology. Part II,	M.C. IX	302	1864	2.00
175	**Bache, A. D.**	Mag. and Met. Observ. at Girard Coll. Parts VII, VIII, IX,	S.C. XIV	72	1864	.25
176	**Henry, Joseph**	Circular on Collecting North American Shells,	M.C. II	4	1860	
177	**Meek, F. B.**	Check List of Invertebrate Fossils of North America. (Cretaceous),	M.C. VII	42	1864	.10
178	**Henry, Joseph**	Circular to Entomologists,	M.C. VIII	2	1860	
179	**Henry, Joseph**	Catalogue of Publications of Societies,	M.C. IX	596	1866	1.00

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
180	**Draper, H.**	Construction of a Silvered Glass Telescope,	S.C. xiv	60	1864	
181	**Baird, S. F.**	Review of American Birds in Smithsonian Museum. Part I,	M.C. xii	484	1866	
182	**Hough, F. B. and Coffin, J. H.**	Results of Meteorological Observations from 1854-1859. Vol. II,	4to.*	546	1864	2.00
183	**Meek, F. B.**	Check List of Invertebrate Fossils of North America. (Miocene),	M.C. vii	34	1864	
184		Smithsonian Contributions to Knowledge. Vol. XIV,	S.C. xiv	490	1865	
185	**Baird, S. F.**	List of Birds in Mexico, etc.,	8vo.*	8	1863	
186	**Bache, A. D.**	Mag. and Met. Observ. at Girard College. Parts X, XI, XII,	S.C. xiv	42	1865	.25
187		Annual Report of Smithsonian Institution for 1863,	R. 1863	420	1864	
188		Annual Report of Smithsonian Institution for 1864,	R. 1864	450	1865	
189	**Scudder, S. H.**	Catalogue of Orthoptera of North America,	M.C. viii	110	1868	.50
190	**Henry, Joseph**	Queries Relative to Tornadoes,	M.C. x	4	1865	
191		Smithsonian Miscellaneous Collections. Vol. VII,	M.C. vii	878	1867	
192	**Leidy, Joseph**	Cretaceous Reptiles of the U. S.	S.C. xiv	142	1865	
193	**Baird, S. F.**	Duplicate Shells from Expedition of Captain Wilkes,	8vo.*	4	1865	
194	**Binney, W. G. and Bland, T.**	Land and Fresh Water Shells of North America. Part I,	M.C. viii	328	1869	
195	**Bache, A. D.**	Girard College Observations. Complete. Parts I to XII,	S.C. xi, xiii, xiv	262	1865	
196	**Hayes, I. I.**	Physical Observations in the Arctic Seas,	S.C. xv	286	1867	
197	**Whittlesey, Ch.**	Glacial Drift of Northwestern States,	S.C. xv	38	1866	
198	**Kane, E. K.**	Physical Observations in the Arctic Seas. Complete,	S.C. x, xi xii, xiii	340	1860	
199	**Newcomb, S.**	Orbit of Neptune,	S.C. xv	116	1866	
200	**Conrad, T. A.**	Check List of the Invertebrate Fossils of N. A. (Eocene),	M.C. vii	46	1866	.05

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
245	**Rhees, Wm. J.**	Check List of Smithsonian Publications to July, 1872,	M.C. x	21	1872	
246		Smithsonian Contributions to Knowledge. Vol. XVIII,	S.C. xviii	646	1872	
247	**Gill, Theo.**	List of Families of Fishes,	M.C. xi	96	1872	.25
248	**Hilgard, E. W.**	Geology of Lower Louisiana,	S.C. xxiii	38	1872	
249		Annual Report of Smithsonian Institution for 1871,	R. 1871	478	1873	
250		Smithsonian Miscellaneous Collections. Vol. X,	M.C. x	918	1873	
251	**Rau, Charles**	Memoir of Von Martius,	R. 1869	12	1871	
252	**Carpenter, P. P.**	American Mollusca,	M.C. x	446	1872	
253	**Tryon, G. W.**	Strepomatidæ. Land and Fresh Water Shells. Part IV,	M.C. xvi	490	1873	2.00
254	**De Saussure, H.**	Synopsis of Wasps,	M.C. xiv	430	1875	1.00
255	**Clarke, F. W.**	Specific Gravity Tables. Constants of Nature. Part I,	M.C. xii	272	1873	
256	**Loew, H.**	Monograph of Diptera. Part III,	M.C. xi	381	1873	
257	**Baird, S. F.**	Systematic List of Foreign corresp.,	M.C. x	30	1872	
258	**Watson, S.**	Botanical Index,	M.C. xv	484	1878	
259	**Jones, Jos.**	Antiquities of Tennessee,	S.C. xxii	181	1876	
260	**Rhees, Wm. J.**	Regulations of Smithsonian Institution.	8vo.*	42	1872	
261	**Packard, A. S.**	Directions for Collecting and Preserving Insects,	M.C. xi	60	1873	
262	**Newcomb, S.**	Orbit of Uranus,	S.C. xix	296	1873	
263	**Henry, Joseph**	Astronomical Telegram Circular,	M.C. xii	4	1873	
264	**Le Conte, J. L.**	New Species Coleoptera. Part II,	M.C. xi	74	1873	
265	**Le Conte, J. L.**	Classification Coleoptera. Part II.	M.C. xi	72	1873	
266	**Woodward, J. J.**	Toner Lecture I. Cancerous Tumors,	M.C. xv	44	1873	.10
267	**Swan, J. G.**	Haidah Indians,	S.C. xxi	22	1874	.75
268	**Coffin, J. H.**	Winds of the Globe,	S.C. xx	781	1875	
269	**Habel, Simeon**	Sculptures of San Lucia Cosumalwhuapa in Guatemala,	S.C. xxii	94	1878	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
270	**Osten Sacken, C. R.**	Catalogue of Diptera of North Am.,	M.C. xvi	324	1878	.50
271		Annual Report of Smithsonian Institution for 1872,	R. 1872	456	1873	
272		Smithsonian Contributions to Knowledge. Vol. XIX,	S.C. xix	660	1874	
273		Smithsonian Miscellaneous Collections. Vol. XI,	M.C. xi	796	1874	
274		Smithsonian Miscellaneous Collections. Vol. XII,	M.C. xii	767	1874	
275		Annual Report of Smithsonian Institution for 1873,	R. 1873	452	1874	
276	**Clarke, F. W.**	Specific Heat Tables. Constants of Nature. Part II,	M.C. xiv	58	1876	
277	**Schott, C. A.**	Temperature Tables,	S.C. xxi	360	1876	1.00
278	**Rhees, Wm. J.**	Check List of Smithsonian Publications,	8vo.*	24	1874	
279	**DaCosta, J. M.**	Toner Lecture III. The Heart.	M.C. xv	32	1874	.10
280	**Alexander, S.**	Harmonies of Solar System,	S.C. xxi	104	1875	.50
281	**Newcomb, S.**	Planetary Motion,	S.C. xxi	40	1874	.25
282	**Wood, H. C.**	Toner Lecture IV. Study of Fever,	M.C. xv	50	1875	.10
283	**Gill, Theo.**	Catalogue of Fishes,	M.C. xiv	56	1875	.10
284		Smithsonian Contributions to Knowledge. Vol. XX,	S.C. xx	794	1876	
285		Smithsonian Contributions to Knowledge. Vol. XXI,	S.C. xxi	543	1876	
286		Annual Report of Smithsonian Institution for 1874,	R. 1874	416	1875	
287	**Rau, Charles**	Archæological Collection, National Museum,	S.C.xxii	118	1876	
288	**Clarke, F. W.**	Specific Gravity Tables. Constants of Nature. Supp. to Part I,	M.C. xiv	62	1876	
289	**Clarke, F. W.**	Tables Expansion by Heat. Constants of Nature. Part III,	M.C. xiv	58	1876	
290	**Rhees, Wm. J.**	List of Smithsonian Publications,	8vo.*	12	1876	
291	**Brown-Séquard, C. E.**	Toner Lecture II. The Brain.	M.C. xv	26	1877	.10

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
292	Cope, E. D.	Batrachia. Bulletin National Museum No. 1,	M.C. xiii	106	1875	
293	Kidder, J. L., and Coues, E.	Birds Kerguelen Island. Bulletin National Museum, No. 2,	M.C. xiii	61	1875	
294	Kidder, J. L., and others	Nat. Hist. Kerguelen Island. Bulletin Nat. Museum, No. 3,	M.C. xiii	122	1876	
295	Lawrence, G. N.	Birds of Mexico. Bulletin National Museum, No. 4,	M.C. xiii	56	1875	
296	Goode, G. B.	Fishes of Bermuda. Bulletin National Museum, No. 5,	M.C. xiii	82	1876	
297	Goode, G. B.	Classification of Animal Resources, etc. Bulletin National Museum, No. 6,	M.C. xiii	139	1876	
298		Annual Report of Smithsonian Institution for 1875,	R. 1875	422	1876	
299		Annual Report of Smithsonian Institution for 1876,	R. 1876	488	1877	
300	Keen, W. W.	Toner Lecture V. Continued Fevers,	M.C. xv	72	1877	.10
301	Rhees, Wm. J.	Check List of Smithsonian Publications to July, 1877,	M.C. xiv	72	1877	
302	Adams, Wm.	Toner Lecture VI. Subcutaneous Surgery,	M.C. xv	20	1877	.10
303	Streets, T. H.	Natural History of Hawaiian and Fanning Islands and Lower California. Bulletin National Museum, No. 7,	M.C. xiii	172	1877	
304	Dall, Wm. H.	Index to Names Applied to Brachiopoda. Bulletin of National Museum, No. 8,	M.C. xiii	88	1877	
305	Jordan, David S.	North American Ichthyology, No. 1. Review of Rafinesque's N. Am. Fishes. Bulletin of Nat. Museum, No. 9,	M.C. xiii	53	1877	
306	Jordan, David S.	North Amer. Ichthyology, No. 2. Notes on Cottidae, &c. Bull. Nat. Mus., No. 10,	M.C. xiii	120	1877	
307	Baird, S. F.	Report on Centennial Exhibition of 1876,	R. 1876	22	1877	
308	Jordan, D. S., and Brayton, A. W.	North Amer. Ichthyology, No. 3. Distribution of Fishes of S. C., Ga., and Tenn. Bulletin Nat. Museum, No. 12,	M.C. xxiii	237	1878	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
309	**Henry, Joseph**	List of Foreign Correspondents of the Smithsonian Institution to Jan., 1878,	M.C. xv	120	1878	
310	**Barnard, J. G.**	Internal Structure of the Earth,	S.C. xxiii	19	1877	.25
311	**Holden, Edw. S.**	Index Catalogue of Books Relating to Nebulæ,	M.C. xiv	126	1877	.50
312		Smithsonian Miscellaneous Collections. Vol. XIII,	M.C. xiii	982	1878	
313	**Eggers, Baron**	Flora of St. Croix and Virgin Islands. Bull. Nat. Mus., No. 13,	M.C. xxiii	136	1879	
314		Smithsonian Miscellaneous Collections. Vol. XIV,	M.C. xiv	911	1878	
315		Smithsonian Miscellaneous Collections. Vol. XV,	M.C. xv	880	1878	
316	**Henry, Joseph**	Circular in Reference to American Archæology,	M.C. xv	15	1878	.02
317	**Elliot, D. G.**	Classification and Synopsis of Trochilidæ,	S.C. xxiii	289	1879	
318	**Dall, Wm. H.**	Remains of Man from Caves in Aleutian Islands,	S.C. xxii	44	1878	
319	**Baird, S. F.**	Circular. Inquiries Relative to Crawfish and Crustacea,	M.C. xv	8	1878	
320	**Baird, S. F.**	Circular Relating to Collections of Living Reptiles,	M.C. xv	2	1878	.02
321	**Shakespeare, E. O.**	Toner Lecture, VII. Inflammation in Arteries after Ligature, etc.,	M.C. xvi	74	1879	.10
322		Smithsonian Miscellaneous Collections. Vol. XVI,	M.C. xvi	950	1880	
323		Annual Report of the Smithsonian Institution for 1877,	R. 1877	500	1878	
324	**Baird, S. F.**	Circular relative to Scientific and Literary Exchanges,	M.C. xvi	2	1879	
325	**Rhees, Wm. J.**	Circular. Business Arrangements of the Smithsonian Institution,	M.C. xvi	7	1879	
326	**Goode, G. B.**	Catalogue of Collection of Animal Resources and Fisheries of U. S. Bulletin Nat. Museum, No. 14,	M.C. xxiii	367	1879	
327	**Smithson, Jas.**	Scientific writings of,	M.C. xxi	166	1879	1.00
328	**Rhees, Wm. J.**	Smithsonian Institution. Documents Relative to its Origin and History, 1835-1878,	S.C. xvii	1027	1879	5.00

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
329	**Rhees, Wm. J.**	Smithsonian Institution. Journals of Board of Regents, Reports of Committees, etc., 1846-1876,	M.C.xviii	851	1879	5.00
330	**Rhees, Wm. J.**	Smithson and his Bequest,	M.C. xxi	76	1879	
331	**Rau, Charles**	The Palenque Tablet,	S.C. xxii	90	1879	
332		Proceedings of the Nat. Museum for 1878. Vol. I,	M.C. xix	524	1879	
333		Proceedings of the Nat. Museum for 1879. Vol. II,	M.C. xix	504	1880	
334	**Elliott, D. G.**	List of Described Species of Humming-Birds,	M.C. xvi	22	1879	.05
335	**Rhees, Wm. J.**	List of Principal American Libraries, Museums, Societies, etc.,	M.C. xvi	6	1879	
336		Smithsonian Miscellaneous Collections. Vol. XVII,	M.C. xvii	1034	1880	
337		Smithsonian Miscellaneous Collections. Vol. XVIII,	M.C.xviii	851	1880	
338	**Welling, J. C.**	Life and Character of Joseph Henry,	M.C. xxi	30	1880	
339	**Taylor, Wm. B.**	The Scientific Work of Joseph Henry,	M.C. xxi	225	1880	
340		Smithsonian Contributions to Knowledge. Vol. XXII,	S.C. xxii	544	1880	
341		Annual Report of Smithsonian Institution for 1878,	R. 1878	575	1879	
342	**Kumlien, L.**	Contributions to Natural History of Arctic America. Bulletin of the National Museum, No. 15,	M.C.xxiii	179	1879	
343	**Henry, Joseph**	Annual Reports of Secretary of S. I. 1865-77,	R. 1865-77	548	1880	.25
344	**Rhees, Wm. J.**	Check List of Smithsonian Publications,	M.C. xvi	16	1879	
345		Annual Report of Smithsonian Institution for 1879,	R. 1879	631	1880	
346		Smithsonian Contributions to Knowledge. Vol. XXIII,	S.C. xxiii	766	1881	
347	**Howard, H.**	Cloud Charts,	*	2	1851	
348	**Baird, S. F.**	Fishes of New Jersey Coast,	R. 1854	40	1855	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
349	**Waring, G. E.**	Toner Lecture VIII. Sanitary Drainage of Washington,	M.C. xxvi	26	1880	.10
350	**Toronto Observatory**	Map of Stars. (For Aurora obs.)	*	1	1856	.02
351	**Cooper, J. G.**	Forests of North America,	R. 1858	36	1859	
352	**Whitney, W. D.**	Lectures on Linguistics,	R. 1863	22	1864	
353	**Schott, C. A.**	Tables of Rain Fall (2d edition),	S.C.xxiv	269	1881	1.50
354	**Delaunay, M.**	Essay on Velocity of Light,	R. 1864	31	1864	
355	**Wetherill, C. M.**	Ozone and Antozone,	R. 1864	12	1864	
356	**Gray, Parker, Baird, (Committee of Regents)**	Memorial of Joseph Henry,	M.C. xxi	532	1880	.50
357	**Wood, H. C.**	Researches on Fever,	S.C. xxiii	263	1878	1.00
358	**Becker, G. J.**	Atomic Weights. Constants of Nature. Part IV,	M.C. xxvii	152	1880	1.00
359	**Conn. Acad. Arts and Sciences**	Planisphere of the Heavens,	*	1	1864	
360	**Desor, E.**	Palafittes, or Lacustrian Constructions,	R. 1865	53	1865	
361	**Baegert, J.**	Aborigines of California,	R.1863-4	41	1865	
362	**Rau, Charles**	Artificial Shell Deposits in New Jersey,	R. 1864	6	1865	
363	**Lewis, James**	Instructions for collecting Land and Fresh Water Shells,	R. 1866	8	1866	
364	**Lilljeborg, W.**	Classification of Birds,	R. 1865	16	1866	
365	**Ross, Hardesty, Jones, Gibbs**	Tinneh or Chepewyan Indians,	R. 1866	25	1866	.10
366	**Edwards, A. M.**	Directions for Collecting Diatomacea,	*	7	1867	
367	**Rothrock, J. T.**	Flora of Alaska,	R. 1867	33	1867	
368	**Rau, Charles**	Indian Pottery,	R. 1866	11	1867	
369	**Abbe, C.**	Dorpat and Poulkova,	R. 1867	23	1867	
370	**Rau, Charles**	Flint Implements in Illinois,	R. 1868	9	1869	
371	**Newton, H. A.**	Metric Tables,	R. 1865	23	1868	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
372	**Rau, Charles**	Drilling in Stone without Metal,	R. 1868	11	1869	
373		Meteorological Stations and Observers,	R. 1868	42	1869	
374	**Schott, C. A.**	Rain Charts for Summer, Winter, and Year,	S.C. xviii	3	1870	.05
375	**Taylor, W. B.**	Origin and Nature of Force,	R. 1870	19	1870	
376	**Hunt, T. Sterry**	Chemistry of the Earth,	R. 1869	26	1871	
377	**Babinet, M.**	Diamond and Precious Stones,	R. 1870	33	1872	
378	**Roehrig, F.L.O.**	Dakota Language,	R. 1871	19	1872	.05
379	**Henry, Joseph**	Eulogy on Alex. D. Bache,	R. 1870	28	1872	.05
380	**Peabody, A. P.**	Scientific Education of Mechanics,	R. 1872	13	1873	.02
381	**Schott, C. A.**	Temperature Chart of U. S. for Year, etc.,	*	1	1873	.02
382	**Rau, Charles**	North American Stone Implements,	R. 1872	16	1873	
383	**Bransford, J. F.**	Archæological Researches in Nicaragua,	S.C. xxv	100	1881	1 00
384	**Baird, S. F.**	Circular on Shipping Fresh Fish, etc.,	*	4	1881	.02
385	**Rau, Charles**	Ancient Aboriginal Trade in North America,	R. 1872	49	1873	
386	**Brezina, A.**	Crystallography,	R. 1872	36	1874	.10
387	**Schott, C. A.**	Temperature Charts, Summer, Winter, Year,	S.C. xxi	3	1874	.05
388	**Schott, C. A.**	Temperature Chart—Year,	S.C. xxi	1	1874	
389	**Henry, Joseph**	Investigation of Illuminants,	R. 1880	25	1881	
390	**Hilgard, J. E.**	Tides and Tidal Action in Harbors,	R. 1874	22	1875	.05
391		Act to establish Smithsonian Institution,	M.C. xviii	10	1875	
392	**Romer, F. F.**	Prehistoric Antiquities of Hungary,	R. 1876	9	1877	
393	**Gillman, Henry**	Mound-builders, Ancient Man in Michigan,	R. 1873 R. 1875	28 13	1874 1877	
394	**Abbott, C. C.**	Stone-age in New Jersey,	R. 1875	136	1877	
395	**Taylor, Wm. B.**	Kinetic Theories of Gravitation,	R. 1876	80	1877	.10
396	**McParlin, T. A.**	History and Climate of New Mexico,	R. 1877	30	1877	.05

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
397	**Mason, Otis T.**	Latimer Collection of Antiquities,	R. 1876	23	1877	
398	**Abbe, C.**	Meteorological Memoirs (Translations),	R. 1877	104	1878	.25
399	**Holmgren, F.**	Color-blindness,	R. 1877	72	1878	
400	**Jones, Chas. C.**	Aboriginal Structures in Georgia,	R. 1877	13	1878	
401	**Weismann, A.**	Change of Mexican Axolotl to Amblystoma,	R. 1877	29	1878	.05
402	**Rau, Charles**	Stock-in-trade of Aboriginal Lapidary,	R. 1877	9	1878	.05
403	**Rau, Charles**	Gold Ornament from Florida,	R. 1877	6	1878	.05
404	**Haldeman, S. S.**	Polychrome Bead from Florida,	R. 1877	6	1878	.05
405	**Taylor, Wm. B.**	Joseph Henry and the Telegraph,	R. 1878	103	1879	
406	**Henry, Joseph**	Researches in Sound,	R. 1878	106	1879	.25
407	**Gray, Asa**	Memoir of Joseph Henry,	R. 1878	35	1879	
408	**Baird, S. F.**	Report of Secretary of Smithsonian Institution for 1878,	R. 1878	60	1879	.10
409	**Sherman, W. T., Parker, P., Baird, S. F., Cluss and Schulze**	Report of Museum Building Commission and of the Architects for 1879,	R. 1879	18	1880	
410	**Holden, E. S.**	Reports of Astronomical Observatories for 1879,	R. 1879	60	1880	
411	**Lautenbach, B. F.**	Irritation of Polarized Nerve,	R. 1878	59	1880	
412	**Cope, Edw. D.**	Zoölogical Position of Texas. Bull. Nat. Mus., No. 17,		51	1880	
413	**Goode, G. Brown**	Berlin Fishery Exhibit. Bull. Nat. Mus., No. 18,		278	1880	
414	**Schott, C. A.**	Base Chart of the United States,	•	1	1880	
415	**Knight, Edw. H.**	Savage Weapons,	R. 1879	90	1880	
416		Smithsonian Miscellaneous Collections. Vol. XIX,	M.C. XIX	1034	1880	
417	**Mayer, Alfred M.**	Joseph Henry as a Discoverer,	M.C. XXI	36	1880	
418	**Baird, S. F.**	Report of Secretary of Smithsonian Institution for 1879,	R. 1879	76	1880	.10

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
419	**Baird, S. F.**	Report of Secretary of Smithsonian Institution for 1880,	R. 1880	88	1881	
420	**Mason, Otis T.**	Anthropological Investigations in 1879,	R. 1879	30	1881	.10
421	**Boehmer, G. H**	Index to Smithsonian Anthropological Articles,	R. 1879	10	1881	
422	**Ridgway, Robt.**	Nomenclature of North American Birds. Bull. Nat. Mus., No. 21,		94	1881	
423		Smithsonian Miscellaneous Collections. Vol. XX,	M.C. xx	846	1881	
424		Smithsonian Miscellaneous Collections. Vol. XXI,	M.C. xxi	773	1881	
425		Proceedings of the Nat. Museum for 1880. Vol. III,	M.C. xxii	594	1881	
426	**Holden, E. S. & Hastings, C. S.**	Synopsis of Herschel's Writings,	R. 1880	118	1881	
427	**Holden, E. S.**	Recent Progress in Astronomy,	R. 1880	39	1881	
428	**Hawes, G. W.**	Recent Progress in Geology and Mineralogy,	R. 1880	30	1881	
429	**Barker, G. F.**	Recent Progress in Physics and Chemistry,	R. 1880	65	1881	
430	**Farlow, W. G.**	Recent Progress in Botany,	R. 1880	19	1881	
431	**Gill, Theo.**	Recent Progress in Zoölogy,	R. 1880	62	1881	
432	**Mason, Otis T.**	Recent Progress in Anthropology,	R. 1880	51	1881	
433	**Mason, Otis T.**	Visit to Luray Cavern, Va.,	R. 1880	12	1881	
434	**Sherman, W. T., Parker, P., Baird, S. F. and Cluss and Schulze**	Report of National Museum Building Commission and of the Architects for 1880,	R. 1880	12	1881	
435	**Loud, F. H.**	Discussion of Snell's Barometric Observations,	R. 1880	23	1881	.05
436	**Baird, S. F.**	List of Periodicals received by Smithsonian Institution,	R. 1880	9	1881	
437	**Rhees, Wm. J.**	Check List of Publications of Smithsonian Institution,	M.C. xxvii	22	1881	
438	**Holden, E. S. & Boehmer, G. H.**	Reports of Astronomical Observatories for 1880,	R. 1880	128	1881	.10
439	**Morin, Arthur**	Warming and Ventilating Bldgs.,	R. 1873-4	92	1882	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
440	**Rau, Charles**	Articles on Anthropology,	R.1863-77	180	1882	.25
441	**Clarke, F. W.**	Recalculation of Atomic Weights. Constants of Nature, Part V,	M.C. xxvii	293	1882	
442		Annual Report of Smithsonian Institution for 1880,	R. 1880	782	1881	
443	**Caswell, A.**	Meteorological Observations, Providence, 1831-1876,	S.C. xxiv	40	1882	.25
444	**Ward, L. F.**	Flora of Washington, D. C. Bulletin National Museum No. 22,		265	1881	
445	**Goode, G. Brown**	Plan of Organization and Regulations of National Museum. Circular N. M. No. 1,	M.C. xxii	58	1882	
446	**Baird, S. F.**	To Friends of the National Museum. Circular N. M. No. 2,	M.C. xxii	2	1882	
447	**Baird, S. F.**	Petroleum Collections. Circular N. M. No. 3,	M.C. xxii	4	1882	
448	**Baird, S. F.**	Department of Insects. Circular N. M. No. 4,	M.C. xxii	2	1882	
449	**Baird, S. F.**	Establishm't and Officers of Smithsonian Institution and National Museum. Circular N. M. No. 5,	M.C. xxii	2	1882	
450	**Flint, J. M.**	Classification Materia Medica Collection. Circular N. M. No. 6,	M.C. xxii	2	1882	
451	**Flint, J. M.**	Classificat'n of forms of Drugs and Medicines. Circular N. M. No. 7,	M.C. xxii	8	1882	
452	**Flint, J. M.**	Memoranda for Collectors of Drugs. Circular N. M. No. 8,	M.C. xxii	2	1882	
453	**Baird, S. F.**	Building Stone Collection. Circular N. M. No. 9,	M.C. xxii	6	1882	
454	**Phillips, Barnet**	Two letters on Work of the Museum. Circular N. M. No. 10,	M.C. xxii	10	1882	
455	**Goode, G. Brown**	Classification of Food Collections. Circular N. M. No. 11,	M.C. xxii	18	1882	
456	**Hornaday, W. T.**	Classification of Collections in Taxidermy. Circular N. M. No. 12,	M.C. xxii	2	1882	
457	**Goode, G. Brown**	Scheme of Classificat'n of National Museum. Circular N. M. No. 13,	M.C. xxii	4	1882	
458	**Baird, S. F.**	Circular for Library of Museum. Circular N. M. No. 14,	M.C. xxii	4	1882	
459	**Goode, G. Brown**	Organization and Objects of the Museum. Circular N. M. No. 15,	M.C. xxii	4	1882	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
460	**Ward, L. F.**	Directions for Collecting and Preserving Plants,	*	32	1882	
461	**Ward, L. F.**	Check List of Plants of Washington, D. C.,	*	62	1882	.05
462	**Ridgway, R.**	Catalogue of Old World Birds in Museum,	M.C. xxii	20	1882	.02
463	**Gill, Theo.**	Bibliography of Fishes of Pacific Coast. Bulletin N. M. No. 11,	M.C. xxiii	77	1882	
464	**Bean, T. H.**	Directions for Collecting and Preserving Fish,	M.C. xxii	6	1881	.02
465	**Rathbun, R.**	List of Marine Invertebrates. Series II,	M.C. xxii	6	1881	
466	**Rhees, Wm. J.**	Directory of Employes of Smithsonian Institution, Nat. Museum, etc.,	8vo.*	8	1882	
467		Proceedings of National Museum for 1881. Vol. IV,	M.C. xxii	600	1882	
468		Smithsonian Miscellaneous Collections. Vol. XXII,	M.C. xxii	1200	1882	
469	**Baird, S. F.**	List of Foreign Correspondents of Smithsonian Institution,	M.C. xxvi	174	1882	.10
470	**Scudder, S. H.**	Nomenclator Zoölogicus. Alphabetical List of Genera of Animals. Bull. N. M. No. 19,		74	1882	
471	**Rathbun, R.**	List of Marine Invertebrates. Series III,	M.C. xxii	4	1881	
472	**Goode, G. Brown**	Plans for Installation of Collections in Mus'm. Circ'lar N. M. No. 16,	M.C. xxii	2	1882	
473	**Baird, S. F.**	Contributions to the Museum and Acknowledgment. Circular N. M. No. 17,	M.C. xxii	2	1882	
474	**Baird, S. F.**	List of Publications of National Museum. Circular N. M. No. 18,	M.C. xxii	12	1882	
475		Smithsonian Miscellaneous Collections. Vol. XXIII,	M.C. xxiii	1003	1882	
476	**Powell, J. W.**	First Annual Report of Bureau of Ethnology, for 1879-80,		638	1881	
477	**Boehmer, G. H.**	History of Smithson'n Exchanges,	R. 1881	170	1882	
478	**Rhees, W. J.**	Catalogue and Index of Smithsonian Publications, 1846-1882,	M.C. xxvii	342	1882	.25

o.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
79	Baird, S. F.	Report of Secretary of Smithsonian Institution for 1881,	R. 1881	53	1883	.10
80	Rhees, W. J.	Classified List of Smithsonian Publications,	M.C. XXVII	24	1883	
81	Mason, O. T.	Miscellaneous Anthropological Papers,	R. 1881	162	1883	
82	Gore, J. H.	Tuckahoe, or Indian Bread,	R. 1881	13	1883	.05
83	Holden, E. S.	Progress in Astronomy for 1881,	R. 1881	42	1883	.10
84	Abbe, Cleveland	Progress in Meteorology for 1881,	R. 1881	126	1883	.10
85	Barker, G. F.	Progress in Physics and Chemistry for 1881,	R. 1881	60	1883	.10
86	Farlow, W. G.	Progress in Botany for 1881,	R. 1881	20	1883	.05
87	Gill, Theo.	Progress in Zoölogy for 1881,	R. 1881	92	1883	.10
88	Mason, O. T.	Progress in Anthropology for 1881,	R. 1881	30	1883	.10
89	Cope, E. D.	Bone Cave in West Indies,	S.C. XXV	34	1883	.50
90	Boehmer, G. H.	Additions to List of Foreign Correspondents,	M.C. XXVI	56	1883	
91	Sherman, W. T. Parker, P., Baird, S. F., Cluss and Schulze	Report of Museum Building Commission and Architects,	R. 1881	10	1882	
92	Jordan, D. S., & Gilbert, C. H.	Synopsis of Fishes of North America. Bulletin N. M. No. 16,	M.C. xxiv	1074	1882	
93	Yarrow, H. C.	North American Reptilia and Batrachia. Bulletin N. M. No. 24,		255	1883	
94	Verrill, A. E. & Rathbun, R.	List of Marine Invertebrates. Series I,	*	6	1879	
95	Jones, J. M., and others	Natural History of the Bermudas. Bulletin N. M. No. 25,		377	1884	
96		Smithsonian Miscellaneous Collections. Vol. XXIV,	M.C. XXIV	1082	1883	
97		Bulletin of Philosophical Society of Washington. Vols. I, II, III,	M.C. XX	779	1881	1.00
98		Bulletin of Philosophical Society of Washington. Vol. IV,	M.C. XXV	189	1881	.25
99		Proceedings of Biological Society of Wash'n. Vol. I. (1880-1882),	M.C. XXV	110	1882	.25

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
500	**Coues, E., and Prentiss, D. W.**	Birds of District of Columbia. Bulletin N. M. No. 26,		133	1882	
501		Transactions of Anthropological Society of Washington. Vol. I. (1879-1882),	M.C. xxv	142	1882	.25
502		Abstract of Transactions of Anthropological Society of Washington. Vol. I. (1880-1881),	M.C. xxv	150	1883	.25
503		Bulletin of Philosophical Soc. of Wash'n. Vol. V. (1881-1882),	M.C. xxv	189	1883	.25
504		Smithsonian Miscellaneous Collections. Vol. XXV,	M.C. xxv	785	1883	
505		Smithsonian Miscellaneous Collections. Vol. XXVI,	M.C. xxvi	866	1883	
506		Smithsonian Miscellaneous Collections. Vol. XXVII,	M.C. xxvii	814	1883	
507	**Le Conte, J. L., & Horn, G. H.**	Classification of N. A. Coleoptera,	M.C. xxvi	606	1883	3.00
508	**Goode, G. Brown**	Bibliography of S. F. Baird. Bulletin National Museum. No. 20,		395	1883	
509	**Rau, Charles**	Prehistoric Fishing,	S.C. xxv	360	1884	2.00
510	**Goode, G. Brown**	Report of Assistant Director of National Museum for 1881,	R. 1881	82	1883	
511		Catalogue of London Fisheries Exhibition. Bulletin National Museum. No. 27,		1333	1884	
512	**Rhees, Wm. J.**	List of Domestic Institutions,		82	1886	.02
513		Bulletins of National Museum. (Nos. 1-10, collected as Vol. I of Bulletins),	M.C. xiii	998	1877	
514	**Bolton, H. C.**	Catalogue of Scientific Periodicals (1665-1882),	M.C. xxix	783	1885	
515		Annual Report of Smithsonian Institution for 1881,	R. 1881	855	1883	
516	**Tarr, R. S.**	List of Marine Invertebrates. Series IV,		5	1883	
517	**Yarrow, H. C.**	Check List of Reptiles. Bulletin N. M. No. 24,		28	1883	.02
518		Proceedings of National Museum for 1882. Vol. V,		715	1883	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
519		Bulletins of National Museum. (Nos. 11-15, collected as Vol. II of Bulletins),	M.C. xxiii	997	1883	
520	**Baird, S. F.**	Report of Secretary of Smithsonian Institution for 1882,	R. 1882	58	1883	.10
521		Bulletin of National Museum. (No. 16, as Vol. III of Bulletins),	M.C. xxiv	1333	1883	
522		Smithsonian Miscellaneous Collections. Vol. XXVIII,	M.C. xxviii	777	1887	
523		First Report of Board on Geographic Names,	*	21	1890	
523a	**Rhees, W. J.**	Price List Smithsonian Publications,	*	12	1888	
523b	**Baird, S. F.**	Circular, Telegraphic Astronomical Discoveries,	*	12	1880	
524	**Goode, G. Brown**	Report of Assistant Director of National Museum for 1882,	R. 1882	148	1883	
525	**Holden, E. S.**	Progress in Astronomy for 1882,	R. 1882	50	1883	
526	**Hunt, T. S.**	Progress in Geology for 1882,	R. 1882	24	1883	.10
527	**Green, F. M.**	Progress in Geography for 1882,	R. 1882	20	1883	.05
528	**Abbe, C.**	Progress in Meteorology for 1882,	R. 1882	99	1883	.10
529	**Barker, G. F.**	Progress in Physics for 1882,	R. 1882	52	1883	.10
530	**Bolton, H. C.**	Progress in Chemistry for 1882,	R. 1882	25	1883	.10
531	**Dana, E. S.**	Progress in Mineralogy for 1882,	R. 1882	18	1883	.05
532	**Farlow, W. G.**	Progress in Botany for 1882,	R. 1882	15	1883	.05
533	**Gill, Theo.**	Progress in Zoölogy for 1882,	R. 1882	68	1883	.10
534	**Mason, O. T.**	Progress in Anthropology for 1882,	R. 1882	41	1883	
535		Miscellaneous Anthropological Papers,	R. 1882	151	1883	.25
536	**Boehmer, G. H.**	List of Astronomical Observatories,	R. 1885	14	1886	.05
537	**Kengla, L. P.**	Archæological Map of the District of Columbia,	*	1	1883	.02
538	**Guyot, A., and Libbey, W., Jr.**	Meteorological and Physical Tables. (Fourth Edition),	M.C. xxviii	773	1884	
539	**Flint, J. M.**	Catalogue of Materia Medica Collections. Circular of National Museum. No. 19,		46	1883	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
540		Report of the Smithsonian Institution for 1882,	R. 1882	875	1884	
541	**Baird, S. F.**	Request for Drug Collections. Circular N. M. No. 20,		2	1883	
542	**Powell, J. W.**	Second Annual Report of Bureau of Ethnology. (1880-1881),		515	1883	
543		Bulletin of Philosophical Soc. of Wash'n. Vol. VI (for 1883),	M.C. xxxiii	220	1884	.25
544		Transactions of Anthropological Society of Washington. Vol. II. 1882-1883,		225	1883	.25
545		Proceedings of Biological Society. Vol. II. (1882-1884),		195	1885	.25
546		Smithsonian Miscellaneous Collections. Vol. XXIX,	M.C. xxix	787	1885	
547		Smithsonian Contributions to Knowledge. Vol. XXIV,	S.C. xxiv	323	1885	
548		Proceedings of National Museum for 1883. Vol. VI,		565	1884	
549	**Binney, W. G.**	Manual of American Land Shells. Bulletin N. M. No. 28,		528	1885	
550	**Henry, Joseph**	Scientific Writings. 2 vols.,	M.C. xxx	1103	1886	3.00
551	**Goode, G. Brown**	Catalogue London Fisheries Exhibition. Part of Bulletin N. M. No. 27,		108	1883	
552	**Rathbun, R.**	Catalogue of Crustaceans, etc., London Fisheries Exhibition. Part of Bulletin N. M. No. 27,		31	1883	.05
553	**Ridgway, R.**	Catalogue of Aquatic Birds, London Fisheries Exhibition. Part of Bulletin N. M. No. 27,		46	1883	.05
554	**Winslow, F.**	Catalogue of Mollusca, London Fisheries Exhibition. Part of Bulletin N. M. No. 27,		86	1883	.10
555	**Brown, J. T.**	Whale Fishery and Appliances, London Fisheries Exhibition. Part of Bulletin N. M. No. 27,		116	1883	
556	**Bean, T. H.**	Catalogue of Fishes of the United States, London Fisheries Exhibition. Pt. of Bull. N. M. No. 27,		124	1883	.10
557	**Rathbun, R.**	Deep-sea Research, London Fisheries Exhibition. Part of Bull. N. M. No. 27,		112	1883	.25

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
558		Smithsonian Miscellaneous Collections. Vol. XXX,	M.C. xxx	1108	1886	
559		Smithsonian Miscellaneous Collections. Vol. XXXI,	M.C. xxxi	990	1888	
560	Flint, J. M.	Report on Pharmacopœias,	*	28	1883	.05
561	Simpson, J. H.	Coronado's March in Search of the Seven Cities of Cibola,	R. 1869	34	1884	
562	True, F. W.	Catalogue of Aquatic Mammals, London Fisheries Exhibition. Part of Bulletin N. M. No. 27,		32	1884	.10
563	Rice, W. N.	Geology of Bermuda. Part of Bulletin N. M. No. 25,		32	1884	
564	Lefroy, J. H.	Botany of Bermuda. Part of Bulletin N. M. No. 25,		112	1884	
565	Jones, J. M.	Mammals of Bermuda. Part of Bulletin N. M. No. 25,		19	1884	
566	Reid, S. G.	Birds of Bermuda. Part of Bulletin N. M. No. 25,		117	1884	
567	Merriam, C. H.	Notes on Birds of Bermuda. Part of Bulletin N. M. No. 25,		6	1884	
568	Garman, S.	Reptiles of Bermuda. Part of Bulletin N. M. No. 25,		22	1884	
569	Webster, H. E.	Annelida from Bermuda. Part of Bulletin N. M. No. 25,		26	1884	
570	Scudder, N. P.	Bibliography of Isaac Lea. Bulletin Nat. Museum, No. 23,		337	1885	
571	Rhees, Wm. J.	Check List of Smithsonian Publications. December, 1881, to March, 1884,	*	7	1884	
572	Rau, C.	Circular relative to Aboriginal Antiquities. Circ. N. M. No. 21,		5	1883	
573	Rhees, Wm. J.	Price List of Smithsonian Publications. March, 1884,	*	8	1884	
574	Holden, E. S.	Progress in Astronomy in 1883,	R. 1883	78	1884	.10
575	Hunt, T. S.	Progress in Geology in 1883,	R. 1883	22	1884	.10
576	Green, F. M.	Progress in Geography in 1883,	R. 1883	17	1884	.05
577	Abbe, C.	Progress in Meteorology in 1883,	R. 1883	92	1884	.10
578	Barker, G. F.	Progress in Physics in 1883,	R. 1883	52	1884	.10

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
579	**Bolton, H. C.**	Progress in Chemistry in 1883,	R. 1883	31	1884	
580	**Dana, E. S.**	Progress in Mineralogy in 1883,	R. 1883	19	1884	.05
581	**Farlow, W. G.**	Progress in Botany in 1883,	R. 1883	18	1884	.05
582	**Gill, T.**	Progress in Zoölogy in 1883,	R. 1883	53	1885	.10
583	**Mason, O. T.**	Progress in Anthropology in 1883,	R. 1883	43	1884	
584	**Loomis, E.**	The Aurora Borealis,	R. 1865	41	1884	.10
585	**Waite, M. R., & Porter, Noah**	Addresses at unveiling Statue of Joseph Henry,	R. 1883	27	1884	.05
586	**Baird, S. F.**	Report of Secretary of Smithsonian Institution for 1883,	R. 1883	86	1885	.10
587	**Goode, G. Brown and others**	Report of the Assistant Director and Curators of the National Museum for 1883,	R. 1883	200	1885	
588		Miscellaneous Anthropological Papers,	R. 1883	122	1885	
589	**Hornaday, W. T.**	Directions for Preserving Skins of Mammals. Circ. N. M. No. 22,		7	1883	
590	**Niblack, A. P.**	Instructions for Paper Moulds of Inscriptions in Stone, etc. Circular Nat. Museum, No. 23,		5	1883	
591	**Gray, Asa**	Flora of N. America. Gamopetalæ,	M.C. xxxi	986	1888	
592		Bulletin of Philosophical Society. Vol. VII. for 1884,	M.C. xxxiii	195	1885	.25
593		Annual Report of the Smithsonian Institution for 1883,	R. 1883	997	1885	
594	**Mills, C. K.**	Mental Overwork. Toner Lecture No. 9,	M.C. xxxiv	38	1885	
595	**Taylor, W. B.**	Refraction of Sound,	R. 1875	12	1885	.05
596	**Howitt, A. W.**	Australian Group Relations,	R. 1883	28	1885	.05
597	**Hitchcock, R.**	Plan of Textile Exhibit. Circular National Museum, No. 24,		16	1884	
598	**Merrill, G. P.**	Plan of Building Stone Exhibit. Circular Nat. Museum, No. 25,		2	1884	
599	**Clarke, F. W.**	Plan for Gem and Precious Stone Exhibit. Circ. N. M. No. 26,		2	1884	
600	**Fernald, C. H.**	Directions for Collecting Moths, etc. Circular N. M. No. 27,		3	1884	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
601	**Thomas, Cyrus**	Directions for Mound Exploration. Circular Nat. Museum, No. 28,		3	1884	
602	**True, F. W.**	Plan for Mammal Exhibit. Circular National Museum, No. 29,		27	1884	
603	**Bendire, C. E.**	Instructions for Collecting Eggs. Circular Nat. Museum, No. 30,		4	1884	
604	**Dewey, S. P.**	Plan for Mineral Exhibit. Circular National Museum, No. 31,		8	1884	
605	**Dorsey, J. O.**	Comparative Phonology of Sioux Languages,	R. 1883	11	1885	.05
606		Smithsonian Contributions to Knowledge. Vol. XXV,	S.C. xxv	508	1885	
607		Proceedings of National Museum. Vol. VII. for 1884,		669	1885	
608	**Baird, S. F.**	Report of Secretary of Smithsonian Institution for 1884,	R. 1884	98	1885	.10
609	**Holden, E. S.**	Progress in Astronomy in 1884,	R. 1884	55	1885	.10
610	**Marcou, J. B.**	Progress in Palæontology in 1884,	R. 1884	20	1885	.10
611	**Green, F. M.**	Progress in Geography in 1884,	R. 1884	19	1885	.05
612	**Abbe, Cleveland & Fassig, O. L.**	Progress in Meteorology in 1884,	R. 1884	176	1885	.10
613	**Barker, G. F.**	Progress in Physics in 1884.	R. 1884	57	1885	.10
614	**Bolton, H. C**	Progress in Chemistry in 1884,	R. 1884	52	1885	
615	**Dana, E. S.**	Progress in Mineralogy in 1884,	R. 1884	19	1885	.05
616	**Rockwood, C. G., Jr.**	Progress in Vulcanology and Seismology in 1883-84,	R. 1884	21	1885	.10
617	**Gill, T.**	Progress in Zoölogy in 1884,	R. 1884	93	1885	.10
618	**Mason, O. T.**	Progress in Anthropology in 1884,	R. 1884	41	1885	
619	**Vreeland, C. E. & Bransford, J. F.**	Antiquities at Pantaleon, Guatemala,	R. 1884	12	1885	
620		Miscellaneous Anthropological Papers,	R. 1884	38	1885	
621	**Mason, O. T.**	Guesde Collection of Antiquities, Guadeloupe,	R. 1884	107	1885	
622	**Flint, J. M. & Beyer, H. G.**	Classification of Materia Medica Collection. Circ. N. M. No. 32,		39	1885	
623		Annual Report of the Smithsonian Institution for 1884,	R. 1884	943	1885	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
624	Stejneger, L.	Ornithological Explorations in Commander Islands. Bulletin National Museum, No. 29,		382	1885	
625	Marcou, J. B.	Bibliographies of F. B. Meek, C. A. White, & C. D. Walcott. Bulletin Nat. Museum, No. 30,		333	1885	
626	Lucas, F. A.	Notes on Preparation of Skeletons. Circular Nat. Museum, No. 33,		8	1885	
627	Rhees, Wm. J.	Price List of Smithsonian Publications,	R. 1885	27	1885	
627a	Rhees, Wm. J.	Price List of Smithsonian Publications, Oct. 1, 1886,	•	26	1886	
628	Bolton, H. C.	Index to Literature of Uranium. 1789-1885,	R. 1885	36	1885	
629	Baird, S. F.	Report of the Secretary of the Smithsonian Institution for six months to June 30, 1885,	R. 1885	46	1885	.10
630		Transactions of Anthropological Society. 1883-85,	M.C. XXXIV	226	1886	.25
631	Powell, J. W.	Third Annual Report Bureau of Ethnology. 1881-82,		680	1884	
632	Goodrich, J. K.	Progress in Geography in 1885,	R. 1885	36	1886	.10
633	Bolton, H. C.	Progress in Chemistry in 1885,	R. 1885	50	1886	
634	Rockwood, C. G., Jr.	Progress in Vulcanology and Seismology in 1885,	R. 1885	23	1886	.10
635	Boehmer, G. H.	List of Foreign Correspondents to July, 1885,	R. 1885	201	1886	
636		Bulletin of Philosophical Society. Vol. VIII. 1885,	M.C. XXXIII	115	1886	.50
637	Baird, S. F.	Lending Type Specimens. Circular Nat. Museum, No. 35,		1	1886	
638	Barker, G. F.	Progress in Physics in 1885,	R. 1885	60	1886	.10
639	Dana, E. S.	Progress in Mineralogy in 1885,	R. 1885	26	1886	.05
640	Mason, O. T.	Progress in Anthropology in 1885,	R. 1885	56	1886	
641	Winlock, W. C.	Progress in Astronomy in 1885,	R. 1885	114	1886	
642	Marcou, J. B.	Progress in Palæontology in 1885.	R. 1885	47	1886	
643	Gill, Theo.	Progress in Zoölogy in 1885,	R. 1885	53	1886	.10
	Thoroddsen, T.	Volcanic Eruptions and Earthquakes in Iceland,	R. 1885	47	1886	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
645		Miscellaneous Anthropological Papers,	R. 1885	44	1886	
646		Exchanges of Birds and Eggs. Circular N. M. No. 34,		1	1886	
647	**Mitchell, S. W., & Reichert, E. T.**	Venoms of Poisonous Serpents,	S.C. xxvi	196	1886	
648		Annual Report of Smithsonian Institution, Pt. 2, 1884, Museum,	M.R. 1884	468	1885	
649		Annual Report of the Smithsonian Institution, Jan. to July, 1885,	R. 1885	1014	1886	
650		Proceedings of National Museum. Vol VIII for 1885,		787	1886	
651	**Baird, S. F.**	Report of Secretary of Smithsonian Institution for year 1885-86,	R. 1886	83	1886	.10
652	**Powell, J. W.**	Fourth Annual Report of Bureau of Ethnology. 1882-83,		595	1886	
653	**Williston, S.W.**	Synopsis of N. A. Syrphidæ. Bulletin N. M. No. 31,		365	1886	
654		Annual Report of the Smithsonian Institution, Pt. 2, Jan. to July, 1885. Museum,	M.R. 1885	1220	1886	
655		Proceedings of National Museum. Vol. IX for 1886,		722	1887	
656	**Cope, E. D.**	Catalogue of Batrachians of Central America and Mexico. Bulletin Nat. Museum, No. 32,		98	1887	
657	**Baird, S. F.**	Report of Secretary of Smithsonian Institution for 1886-'87,	R. 1887	27	1887	.10
658	**Tuckerman, A.**	Index to Literature of the Spectroscope,	M.C. xxxii	433	1888	1.00
659	**Clarke, F. W.**	Table of Sp. Gravities. Constants of Nature, Part I. (2nd edition),	M.C. xxxii	417	1888	2.00
660		Smithsonian Miscellaneous Collections. Vol. XXXII,	M.C. xxxii	855	1888	
661		Bulletin of Philosophical Society, 1886-1887. Vols. IX & X and Index for Vols. 1 to 10,	M.C. xxxiii	376	1888	.50
662		Smithsonian Miscellaneous Collections. Vol. XXXIII,	M.C. xxxiii	910	1888	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
663	**Traphagen. F. W.**	Index to Literature of Columbium 1801-1887,	M.C. xxxiv	80	1888	.25
664	**Winlock, W. C.**	Bibliography of Astronomy, 1887,	M.C. xxxiv	63	1888	
665	**Bolton, H. C.**	Bibliography of Chemistry, 1887,	M.C. xxxiv	13	1888	
666	**Boehmer, G. H.**	Additions to List of Foreign Correspondents—to July, 1886,	R. 1886	36	1889	
667	**Boehmer, G. H.**	Systematic List of Foreign Correspondents—to July, 1886,	R. 1886	55	1889	
668	**Langley, S. P.**	Report of Secretary of Smithsonian Institution for 1887-'88,	R. 1888	123	1890	.10
669		Proceedings of the National Museum. Vol. X, for 1887,		779	1888	
670	**Powell, J. W.**	Fifth Annual Report of the Bureau of Ethnology, for 1883-1884,		617	1887	
671	**Agassiz, L. and Fewkes, J. W.**	Anatomy of Astrangia Danæ,	4to	20	1889	.75
672	**Agassiz, L., Baird, S. F., Jordan, D. S.**	Six Species of North American Fresh-water Fishes,	4to	12	1889	.75
673	**Hyatt, A.**	Genesis of the Arietidæ,	S.C. xxvi	278	1889	2.50
674	**Egleston, T.**	Cat. of Minerals. Bull. N. M. No. 33,		198	1889	
675	**Boehmer, G. H.**	Report on Astronomical Observatories, 1886,	R. 1886	119	1889	.10
676		Annual Report of the Smithsonian Institution for 1885-86,	R. 1886	896	1889	
677		Annual Report of the Smithsonian Institution, Pt. 2, 1885-1886, Museum,	M.R. 1886	588	1889	
678		Proceedings of the National Museum. Vol. XI, for 1888,		716	1889	
679	**Cope, E. D.**	Batrachia of North America. Bulletin Nat. Museum, No. 34,		525	1889	
680	**Edwards, H.**	Bibliography of Transformations of Lepidoptera. Bull. N. M. No. 35,		147	1889	
681	**True, F. W.**	Review of Delphinidæ. Bulletin National Museum, No. 36,		191	1889	

No.	Author.	Title	Size or Series.	Pages.	Date.	Price.
682	**Dall, W. H.**	Catalogue of Mollusks, S. E. Coast of the United States. Bulletin National Museum, No. 37,		221	1889	
683	**Boehmer, G. H.**	Report on Exchanges for 1886,	R. 1886	30	1889	.05
684		Miscellaneous Anthropological Papers,	R. 1886	132	1889	
685	**Stearns, R. E. C.**	Parasites in the Pearl Oysters,	R. 1886	6	1889	.05
686	**Fleming, S.**	Time Reckoning for the Twentieth Century,	R. 1886	22	1889	.05
687	**Rhees, W. J.**	Catalogue and Index of Smithsonian Publications, 1846-1886,	R. 1886	383	1889	
688	**Kidder, J. H.**	Report on International Exchanges for 1888,	R. 1888	16	1888	.05
689		Annual Report of the Smithsonian Institution for 1886-87,	R. 1887	755	1889	
690		Annual Report of the Smithsonian Institution, Pt. 2, 1886-1887, Museum,	M.R. 1887	789	1889	
691	**Bigelow, F. H.**	Solar Corona discussed by Spherical Harmonics,	*	22	1890	
692	**Todd, D. P.**	Photographs of Solar Corona, Jan. 1, 1889,	*	9	1890	
693	**Powell, J. W.**	Sixth Annual Report of the Bureau of Ethnology, for 1884-1885,		733	1888	
694	**Boehmer, G. H.**	Report on Exchanges for 1887,	R. 1887	24	1889	.05
695	**Huxley, T. H.**	Advance of Science in last Half Century,	R. 1887	42	1889	.05
696	**Winlock, W. C.**	Progress in Astronomy in 1886,	R. 1887	89	1889	
697	**Darton, N. H.**	Progress in Geology in 1886,	R. 1887	41	1889	.10
698	**Marcou, J. B.**	Bibliography of North American Palæontology, 1886,	R. 1887	57	1889	
699	**Rockwood, C. G.**	Progress in Vulcanology and Seismology in 1886,	R. 1887	24	1889	.10
700	**Libbey, W., Jr.**	Progress in Geography in 1886,	R. 1887	13	1889	.05
701	**Barker, G. F.**	Progress in Physics in 1886,	R. 1887	60	1889	.10
702	**Bolton, H. C.**	Progress in Chemistry in 1886,	R. 1887	61	1889	
703	**Dana, E. S.**	Progress in Mineralogy in 1886,	R. 1887	28	1889	.05

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
704	**Gill, Theo.**	Progress in Zoölogy in 1886,	R. 1887	46	1889	.10
705	**Mason, O. T.**	Progress in Anthropology in 1886,	R. 1887	45	1889	
706		Miscellaneous Anthropological Papers,	R. 1887	123	1889	
707	**Dana, J. D.**	Memoir of Arnold Guyot,	R. 1887	80	1889	.05
708	**Allen, H.**	Study of the Skull. Toner Lect. X,	M.C. xxxiv	83	1890	
709	**Watkins, J. E.**	Report on Steam Transportation Exhibit,	M.R. 1886	28	1889	
710	**Clarke, F. W.**	Meteorite Collection,	M.R. 1886	11	1889	
711	**Kunz, G. F.**	Gem Collection,	M.R. 1886	9	1889	
712	**Merrill, G. P.**	Building and Ornamental Stones,	M.R. 1886	372	1889	
713	**Hornaday, W.T.**	How to Collect Mammal Skins,	M.R. 1886	12	1889	
714		List of Museum Accessions in 1885-1886,	M.R. 1886	109	1889	
715	**Mason, O. T.**	Cradles of the Amer. Aborigines,	M.R. 1887	52	1889	
716	**Porter, J. H.**	Artificial Deformation of Children,	M.R. 1887	23	1889	
717	**Mason, O. T.**	Human Beasts of Burden,	M.R. 1887	59	1889	
718	**Stearns, R. E. C.**	Ethno-conchology, a Study of Primitive Money,	M.R. 1887	38	1889	
719	**Hornaday, W.T.**	Extermination of American Bison,	M.R. 1887	184	1889	
720	**Hough, W.**	Preservation of Mus. Specimens,	M.R. 1887	10	1889	
721		List of Museum Accessions in 1886-87,	M.R. 1887	129	1889	
722	**Langley, S. P.**	Report of Secretary of Smithsonian Institution for 1888-89,	R. 1889	90	1891	.10
723	**Langley, S .P.**	Circular Concerning Department of Antiquities. Cir. N. M. No. 36,		6	1889	
724	**Donaldson, T.**	Catlin Indian Gallery,	M.R. 1885	946	1886	
725	**Koehler, S. R.**	Cat. of Graphic Arts Exhibit, Cincinnati, 1888. Cir. N. M. No. 37,		31	1888	
726	**Watkins, J. E.**	Cat. of Transportation Exhib., Cincinnati, 1888. Cir. N. M. No. 38,		18	1888	
727	**Adler, Cyrus**	Cat. of Oriental Antiquities, Cincinnati, 1888. Cir. N. M. No. 39,		7	1888	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
728	Wilson, Thos.	Prehistoric Anthropological Exhibit, Cincinnati, 1888. Cir. N. M. No. 40,		33	1888	
729	True, F. W.	Guide to Mammal Exhibit, Cincinnati, 1888. Cir. N. M. No. 41,		26	1888	
730	Wilson, Thos.	Cir. Relative to Prehistoric Anthropology. Cir. N. M. No. 42,		16	1888	
731		Smithsonian Contributions to Knowledge. Vol. XXVI,	S.C. xxvi	472	1890	
732	Mason, O. T.	Throwing-Sticks, in the National Museum,	M.R. 1884	48	1890	
733	Mason, O. T.	Basket Work of N. A. Indians,	M.R. 1884	146	1890	
734	Murdoch, John	Study of Eskimo Bows,	M.R. 1884	36	1890	
735	Goode, G. Brown	Report of Ass't Sec. June 30, 1888,	M.R. 1888	84	1890	
736	Adler, Cyrus	Report on Oriental Antiquities, 1888,	M.R. 1888	12	1890	
737	Watkins, J. E.	Report on Transportation, 1888,	M.R. 1888	5	1890	
738	Niblack, A. P.	Indians of Alaska,	M.R. 1888	160	1890	
739	Hippisley, A. E.	Cat. of Chinese Porcelains,	M.R. 1888	105	1890	
740	Lucas, F. A.	Expedition to Funk Island,	M.R. 1888	37	1890	
741	Tuckerman, A.	Index to Thermodynamics,	M.C. xxxiv	244	1890	
742	Hough, Walter	Fire-making Apparatus in Nat. Museum,	M.R. 1888	57	1890	
743	Wilson, Thos.	Prehistoric Anthropology, a handbook for beginners,	M.R. 1888	75	1890	
744		List of Museum Accessions in 1887-1888,	M.R. 1888	82	1890	
745	Rhees, W. J.	Check List Smithsonian Publications, 1846-1890,	*	35	1890	
746		Proceedings Regents; Report Exec. Com.; Acts Congress,	R. 1888	35	1890	.05
747	Winlock, W. C.	Progress in Astronomy in 1887-1888,	R. 1888	94	1890	
748	McGee, W J	Progress in Geology in 1887-1888,	R. 1888	46	1890	
749	Williams, H. S.	Progress in N. A. Palæontology in 1887-1888,	R. 1888	68	1890	.10
750	Merrill, G. P.	Progress in Petrography in 1887-1888,	R. 1888	30	1890	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
751	**Abbe, C.**	Progress in Dynamic Meteorology in 1887-1888,	R. 1888	72	1890	.10
752	**Clarke, F. W.**	Progress in Chemistry in 1887-1888,	R. 1888	31	1890	.10
753	**Dana, E. S.**	Progress in Mineralogy in 1887-1888,	R. 1888	21	1890	.05
754	**Knowlton, F. H.**	Progress in Botany in 1887-1888,	R. 1888	24	1890	.10
755	**Mason, O. T.**	Progress in Anthropology in 1887-1888,	R. 1888	88	1890	.10
756	**Davis, J. W.**	Chronology of the Human Period,	R. 1888	5	1890	.05
757	**Snyder, J. F.**	Were the Osages Mound-builders?	R. 1888	12	1890	.05
758	**Harkness, W.**	Art of Weighing and Measuring,	R. 1888	39	1890	.05
759	**Wilsing, J.,** **Gore, J. H.**	Density of the Earth,	R. 1888	14	1890	.05
760	**Marcou, J.**	Derivation of name America,	R. 1888	29	1890	
761	**Adler, C.**	Oriental Science in America,	R. 1888	30	1890	.10
762	**Ridgway, R.** **Mallery, G.,** **Taylor, W. B.,** **Dall, W. H.,** **Powell, J. W.**	Biographical Memoirs of Spencer F. Baird,	R. 1888	44	1890	.10
763	**Dana, E. S.,** **Farlow, W. G.**	Biographical Memoirs of Asa Gray,	R. 1888	83	1890	.02
764	**Rogers, J. A.**	Correction of Sextants,	M.C. xxxiv	36	1890	.15
765	**Jouy, P. L.**	Korean Mortuary Pottery,	M.R. 1888	26	1890	
766	**Wilson, T.**	Man in North America in Paleolithic Period,	M.R. 1888	25	1890	
767		Report of Smithsonian Institution, 1887-88,	R. 1888	880	1890	
768		Report of Smithsonian Institution, Pt. 2, 1887-88, Museum,	M.R. 1888	898	1890	
769		Report of Smithsonian Institution, 1888-89,	R. 1889	861	1890	
770		Report of Smithsonian Institution, Pt. 2, 1888-89, Museum,	M.R. 1889	951	1891	
771	**Langley, S. P.**	Report of Secretary of Smithsonian Institution for 1889-90.	R. 1890	94	1891	.10
772		Proceedings Regents; Report Exec. Com.; Acts of Congress,	R. 1889	38	1890	.05

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
773	**Guttstadt, A.**	Scientific Institutions in Berlin,	R. 1889	58	1890	.10
774	**De Tunzelmann, G. W., Trouton, Fred. T.**	Hertz's Researches, Electric Oscillations,	R. 1889	61	1890	.10
775	**Curtis, G. E.**	Progress in Meteorology, 1888-'89,	R. 1889	83	1890	.25
776	**Blytt, A.**	Movements of Earth's Crust,	R. 1889	53	1890	.10
777	**Seely, F. A.**	Time-keeping in Greece and Rome,	R. 1889	23	1890	.05
778		*Biological Papers:*	R. 1889	68	1890	.25
	Thistleton-Dyer, W. T.	Botanical Biology,				
	Burdon-Sanderson, J.	Elementary Problems in Physiology,				
	Roscoe, Henry E.	Life-work of a Chemist (Pasteur),				
	Turner, Wm.	Heredity,				
779		*Physical Papers:*	R. 1889	48	1890	.10
	Thomson, Wm.	Boscovich's Theory,				
	Lodge, O. J.	Modern Theory of Light,				
	Radau, R.	Photography in service of Astronomy,				
	Anderson, Wm.	Molecular Structure of Matter,				
780	**Lovering, Jos.**	Michelson's Researches on Light,	R. 1889	22	1890	.05
781		*Anthropological Papers:*	R. 1889	64	1890	.25
	Virchow, R.	Anthropology in the Last Twenty Years,				
	Unset, I.	Scandinavian Archæology,				
	Topinard, P.	Last Steps in Genealogy of Man,				
782	**Mason, O. T.**	Progress in Anthropology in 1889, Bibliography of Anthropology in 1889,	R. 1889	80	1890	.10
783	**Adams, H. B.**	The State and Higher Education,	R. 1889	18	1890	.05
784	**Scaiffe, W. B.**	Geographical Latitude,	R. 1889	47	1890	.05
785	**Tuckerman, A.**	Bibliography of Chemical Influence of Light,	M.C. XXXIV	26	1891	.25
786	**Goode, G. B.**	Report of Asst. Sec'y on National Museum, 1889,	M.R. 1889	277	1891	
787	**Goode, G. B.**	List of American and Foreign Libraries,	M.R. 1889	89	1891	
788	**Müller, A.**	Memoir of H. L. Fleischer,	R. 1889	21	1890	.05
789	**Wenham, F. H.**	Aerial Locomotion,	R. 1889	23	1890	
790	**Rhees, W. J.**	Price List Smithsonian Publications, May, 1889,	*	33	1889	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
791	**Helmholtz, R.**	Memoir of G. R. Kirchhoff,	R. 1889	16	1890	
792	**Goode, G. B.**	Museums of the Future,	M.R. 1889	21	1891	
793	**Thomson, W. J.**	Easter Island Antiquities,	M.R. 1889	108	1891	
794	**Mason, O. T.**	Aboriginal Skin-dressing,	M.R. 1889	39	1891	
795	**True, F. W.**	The Puma,	M.R. 1889	20	189	
796	**Lucas, F. A.**	Animals Threatened with Extermination,	M.R. 1889	43	1891	
797	**Watkins, J. E.**	Development of the American Rail,	M.R. 1889	60	1891	
798	**Lucas, F. A.**	Explorations in Newfoundland,	M.R. 1889	22	1891	
799	**Merrill, G. P.**	Hand-book of Dept. of Geology,	M.R. 1889	52	1891	
800	**Gray, A.**	Forest Trees of N. America, Plates (23),	*	4	1891	
801	**Langley, S. P.**	Experiments in Aerodynamics, 1st ed.,	S.C. xxvii	118	1891	
		Experiments in Aerodynamics, 2d ed.,	S.C. xxvii	118	1902	1.00
802		Proceedings Regents; Report Exec. Com.; Acts Congress,	R. 1890	35	1891	.05
803	**Schubert, H.**	Squaring the Circle,	R. 1890	26	1891	.05
804	**Winlock, W. C.**	Progress in Astronomy, 1889-'90.	R. 1890	64	1891	
805	**Woodward, R.S.**	Mathematical Theories of the Earth,	R. 1890	20	1891	.05
806	**Hennessy, H.**	Physical Structure of the Earth,	R. 1890	21	1891	.05
807	**Geikie, Jas.**	Glacial Geology,	R. 1890	12	1891	.05
808	**Gilbert, G. K.**	History of the Niagara River,	R. 1890	29	1891	
809	**Playfair, R. L.**	The Mediterranean,	R. 1890	20	1891	.05
810	**Keltie, J. S.**	Stanley and the Map of Africa,	R. 1890	17	1891	.05
811	**Griffiths, G. S.**	Antarctic Exploration,	R. 1890	14	1891	.05
812	**Witskowski, B., Gore, J. H.**	Geodetic Operations in Russia,	R. 1890	12	1891	.05
813	**Boys, C. V.**	Quartz Fibers,	R. 1890	22	1891	.05
814	**Thompson, S. P.**	Koenig's Researches on Musical Harmony,	R. 1890	27	1891	.05

No.	AUTHOR.	TITLE.	SIZE OR SERIES.	PAGES.	DATE.	PRICE.
815	Meyer, V.	Chemical Problems of to-day,	R. 1890	17	1891	.05
816	Meldola, R.	Photographic Image,	R. 1890	13	1891	.05
817	Treub, T. M.	Tropical Botanic Garden,	R. 1890	20	1891	.05
818	Varigny, H. de	Temperature and Life,	R. 1890	24	1891	.05
819	Minot, C. S.	Morphology of Blood-corpuscles,	R. 1890	5	1891	.02
820	Romanes, G. J.	Weismann's Theory of Heredity,	R. 1890	16	1891	.05
821	Baker, Frank	Ascent of Man,	R. 1890	22	1891	
822	Evans, John	Antiquity of Man,	R. 1890	10	1891	
823	Sayce, A. H.	Primitive Home of the Aryans,	R. 1890	15	1891	
824	Taylor, Isaac	Prehistoric Races of Italy,	R. 1890	12	1891	.05
825	Montelius, O.	Age of Bronze in Egypt,	R. 1890	30	1891	.05
826	Mason, O. T.	Progress in Anthropology in 1890, Bibliography of Anthropology in 1890,	R. 1890	84	1891	.10
827	Snyder, J. F.	Primitive Urn Burial,	R. 1890	7	1891	.05
828	Allen, G. A.	Manners and Customs of the Mohaves,	R. 1890	4	1891	.02
829	Wilson, T.	Criminal Anthropology,	R. 1890	72	1891	.10
830	Carter, R. B.	Color-vision and Color-blindness,	R. 1890	20	1891	.05
831	Reuleaux, F.	Technology and Civilization,	R. 1890	17	1891	.05
832	Watkins, J. E.	Ramsden Dividing Engine,	R. 1890	21	1891	.05
833	Newton, H. A.	Memoir of Elias Loomis,	R. 1890	32	1891	.05
834		Memoir of W. K. Parker,	R. 1890	6	1891	.05
835	Rhees, Wm. J.	List of Smithsonian Publications, Jan., 1892,	*	27	1892	
836	Langley, S. P.	Report of Secretary Smithsonian Institution for 1890-91,	R. 1891	65	1893	.10
837		Report of Smithsonian Institution. 1889-90.	R. 1890	849	1891	
838	Haupt, P.	Report on Congress of Orientalists. Sept., 1889,	R. 1890	10	1891	
839		Smithsonian Contributions to Knowledge. Vol. XXVII,	S.C. XXVII			

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
840	Bendire, C.	Life Histories of N. Am. Birds. Vol. I,	S.C. xxviii	456	1892	
841		Smithsonian Contributions to Knowledge, Vol. XXVIII,	S.C. xxviii	467	1892	
842	Michelson, A.A.	Spectroscopic Measurements,	S.C. xxix	24	1892	1.00
843	Abbe, C.	Mechanics of the Atmosphere,	M.C. xxxiv	324	1893	.50
844		Smithsonian Meteorological Tables,	M.C. xxxv	321	1893	
845	Langley, S. P.	Report of Secretary Smithsonian Institution for 1891-92,	R. 1892	85	1893	.10
846		Report of Smithsonian Institution. Pt. 2. 1889-90. Museum,	M.R. 1890	829	1891	
847	Powell, J. W.	Seventh Report Bureau of Ethnology, 1885-86,		452	1891	
848		Report Smithsonian Institution for 1890-'91,	R. 1891	758	1893	
849		Smithsonian Miscellaneous Collections. Vol. XXXIV,	M.C. xxxiv	1069	1893	
850	Bolton, H. C.	Bibliography of Chemistry, 1492-1892,	M.C. xxxvi	1225	1893	3.50
851		Smithsonian Miscellaneous Collections. Vol. XXXVI,	M.C. xxxvi	1230	1893	
852		Tables Natural Sines and Cosines, Tangents, etc.,	M.C. xxxv	8	1893	
853		Report Smithsonian Institution. Pt. 2. 1890-'91. Museum,	M.R. 1891	886	1892	
854	Woodward, R.S.	Geographical Tables,*	M.C. xxxv	287	1894	2.00
55	Powell, J. W.	Eighth Report Bureau of Ethnology. 1886-1887,		334	1891	
56	Sherborn, C. D.	Index Foraminifera. Part I,	M.C. xxxvii	243	1893	1.00
57	Powell, J. W.	Ninth Report Bureau of Ethnology. 1887-1888,		663	1892	
8		Proceedings Regents; Report Exec. Com.; Acts Congress,	R. 1891	37	1893	.05
	Huggins, W.	Celestial Spectroscopy,	R. 1891	36	1893	.10
	rke, A. M.	Stellar numbers and Distances, Sun's Motion in Space, A Southern Observatory,	R. 1891	26	1893	.05

---

revised edition, only, is available.

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
861	**Chree, C.**	Application of Physics and Mathematics to Geology,	R. 1891	29	1893	.05
862	**Orton, E.**	Origin of Rock Pressure of Natural Gas,	R. 1891	8	1893	.05
863	**Weed, W. H.**	Geysers,	R. 1891	18	1893	.05
864	**Von Siemens, W.**	Circulation of the Atmosphere,	R. 1891	11	1893	.02
865	**Agassiz, A.**	The Gulf Stream,	R. 1891	20	1893	.05
866	**Auerbach, F.**	Absolute Measurement of Hardness,	R. 1891	32	1893	.10
867	**Hallock, W.**	Flow of Solids, Bibliography,	R. 1891	12	1893	.02
868	**Lommel, E.**	Scientific Work of Geo. S. Ohm,	R. 1891	10	1893	.05
869	**Liebig, J.**	Autobiography,	R. 1891	12	1893	.05
870	**Gulick, J. T.**	Divergent Evolution Through Cumulative Segregation,	R. 1891	70	1893	.10
871	**Rodway, J.**	Struggle for Life in the Forest,	R. 1891	13	1893	.05
872	**Miall, L. C.**	Life of Aquatic Insects,	R. 1891	18	1893	.02
873	**Merriam, C. H.**	Geographic Distribution of Life in N. Am.,	R. 1891	53	1893	.10
874	**Spears, J. R.**	Corbin Game-Park in New Hampshire,	R. 1891	7	1893	.05
875	**Hamy, E. T.**	Home of the Troglodytes,	R. 1891	7	1893	.05
876	**Mason, O. T.**	Progress in Anthropology in 1891, Bibliography of Anthropology in 1891,	R. 1891	72	1893	.10
877	**Carr, L.**	Mounds of the Mississippi Valley,	R. 1891	99	1893	
878	**Smith, G. V.**	Use of Flint Blades to work Pinewood,	R. 1891	5	1893	
879	**Magowan, D. J.**	Modes of time keeping by Chinese,	R. 1891	6	1893	.02
880	**Matthews, W.**	Navajo dye-stuffs,	R. 1891	3	1893	.05
881	**Goodale, G. L.**	Possibilities of Economic Botany,	R. 1891	32	1893	.05
882	**Hubbard, G. G.**	Evolution of Commerce,	R. 1891	16	1893	.05
883	**Reymond, E. du Bois**	Relation of Natural Science to Art,	R. 1891	24	1893	.05

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
884	**Langley, S. P.**	Internal Work of the Wind,	S.C. xxvii	27	1893	.50
885		Report Smithsonian Institution for 1891-92,	R. 1892	860	1893	
886		Report Smithsonian Institution. Part 2. 1891-92. Museum,	M.R. 1892	635	1893	
887		Proceedings Regents; Report Exec. Com.; Acts Congress,	R. 1892	40	1893	.05
888		Meteorological Work of the Institution,	R. 1892	7	1893	.02
889	**Hastings, C. S.**	History of the Telescope,	R. 1892	17	1893	.05
890	**Geikie, A.**	Geological Change and Time,	R. 1892	23	1893	.05
891	**Hague, A.**	Soaping Geysers in Yellowstone Park,	R. 1892	11	1893	.10
892	**Gilbert, G. K.**	Continental Problems of Geology,	R. 1892	13	1893	.05
893	**McGee, W J**	Earth, Home of Man,				
894		Hertz's Experiments Electric Undulations,	R. 1892	27	1893	.05
895	**Thomson, J. J.**	Electricity through Exhausted Tubes,	R. 1892	28	1893	.05
896	**Ewing, J. A.**	Molecular Process in Magnetic Induction,	R. 1892	16	1893	.05
897	**Liveing, G. D.**	Crystallization,	R. 1892	14	1893	.05
898	**Judd, J. W.**	Rejuvenescence of Crystals,	R. 1892	10	1893	.05
899	**Masson, O.**	Gaseous Theory of Solution,	R. 1892	15	1893	.05
900	**Ramsay, W.**	Solutions, Liquids and Gases,	R. 1892	16	1893	.05
901	**Osborn, H. F.**	Evolution and Heredity,	R. 1892	64	1893	.10
902	**Palmen, J. A.**	Migration of Birds,	R. 1892	24	1893	
903	**Mouillard, L. F.**	Empire of the Air,	R. 1892	69	1893	.10
904	**Mason, O. T.**	Progress in Anthropology in 1892, Bibliography of Anthropology,	R. 1892	50	1893	.10
905	**Quatrefages, A.**	Advent of Man in America,	R. 1892	10	1893	
906	**Wilson, Thos.**	Primitive Industry,	R. 1892	16	1893	.05

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
907	**Hales, H.**	Prehistoric New Mexican Pottery,	R. 1892	22	1893	
908	**Wanner, A.**	Relics of Indian Hunting-ground, York, Pa.,	R. 1892	18	1893	.05
909	**Thompson, R.J.**	Mounds, Seneca Co., Ohio,	R. 1892	7	1893	.05
910	**Brackett, W. S.**	Indian Remains, Upper Yellowstone,	R. 1892	7	1893	.05
911	**Conant, L. L.**	Primitive Number Systems,	R. 1892	14	1893	.05
912	**Shute, D. K.**	Anthropology of the Brain,	R. 1892	9	1893	.05
913	**Ward, L. F.**	Mind Problem,				
914	**Brown, Addison**	Endowment for Scientific Research and Publication,	R. 1892	20	1893	.05
915	**Gray, Thos.**	Inventors of Telegraph and Telephone,	R. 1892	21	1893	.05
916	**Rockhill, W.W.**	Explorations in Mongolia and Tibet	R. 1892	23	1893	.05
917	**Winlock, W. C.**	Progress in Astronomy, 1891-1892, Bibliography of Astronomy, 1891-1892,	R. 1892	96	1893	
918	**Langley, S. P.**	Report of Secretary Smithsonian Institution for 1892-'93,	R. 1893	72	1894	.10
919	**Packard, R. L.**	Pre-Columbian Copper-mining,	R. 1892	26	1893	.05
920	**Tregear, E.**	Polynesian Bow,	R. 1892	6	1893	.05
921	**Mason, O. T.**	Birth of Invention,	R. 1892	11	1893	.05
922	**Billings, J. S.**	American Inventions in Medicine, etc.,	R. 1892	9	1893	.05
923		Act of Congress organizing Smithsonian Institution. Revised Statutes, Title LXXIII, Amendments. Mar. 1894,	*	10	1894	
924	**Rhees, Wm. J.**	List of Publications of Sm. Inst. for Sale or Exchange. May, 1894,	*	26	1894	
925		Report of Smithsonian Institution, 1892-'93,	R. 1893	807	1894	
926		Proceedings Regents; Report Exec. Com.; Acts of Congress,	R. 1893	38	1894	.05
927	**Ball, Robt.**	Wanderings of the North-Pole,	R. 1893	15	1894	.05
928	**Ranyard, A. C.**	Great Lunar Crater Tycho,	R. 1893	8	1894	.05

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
929	**Lockyer, J. N.**	Early Temple and Pyramid Builders,	R. 1893	13	1894	.05
930	**Young, C. A.**	Variable Stars,	R. 1893	7	1894	.02
931	**Stokes, G. G.**	Luminiferous Æther,	R. 1893	9	1894	.05
932	**Ball, Robt.**	Atoms and Sunbeams,	R. 1893	15	1894	.05
933	**Mendenhall, T. C.**	Fundamental Units of Measure,	R. 1893	17	1894	.02
934	**Ives, F. E.**	Photography in Colors of Nature,	R. 1893	14	1894	.05
935	**Warnerke, L.**	Photographs in Natural Colors,	R. 1893	4	1894	.05
936	**Boys, C. V.**	Electric Spark Photos of Flying Bullets,	R. 1893	20	1894	.10
937	**Dewar, Jas.**	Magnetic Properties of Liquid Oxygen,	R. 1893	7	1894	.05
938	**Lilienthal, O.**	Flying and Soaring,	R. 1893	13	1894	.05
939	**Aitken, John**	Phenomena of Cloudy Condensation,	R. 1893	32	1894	.10
940	**Ostwald, W.**	Chemical Energy,	R. 1893	10	1894	.05
941	**Caldwell, G. C.**	The American Chemist,	R. 1893	16	1894	.05
942	**Rotch, A. L.**	Highest Meteorological Station in the World,	R. 1893	7	1894	.05
943		Mont-Blanc Observatory,	R. 1893	7	1894	.05
944	**Hubbard, G. G.**	Relations of Air and Water to Temperature and Life,	R. 1893	13	1894	.05
945	**Wallace, A. R.**	Ice Age and its Work,	R. 1893	26	1894	.05
946	**Walcott, C. D.**	Geologic Time,	R. 1893	36	1894	.10
947	**King, C.**	Age of the Earth,	R. 1893	20	1894	.05
948	**Murray, John**	Renewal of Antarctic Explorations,	R. 1893	23	1894	.05
949	**Seebohm, H.**	North Polar-basin,	R. 1893	22	1894	.05
950	**Markham, C. R.**	Present Standpoint of Geography,	R. 1893	26	1894	.05
951	**Blaikie, W. B.**	How Maps are Made,	R. 1893	17	1894	.05
952	**Burdon-Sanderson, J.**	Biology and the Natural Sciences,	R. 1893	31	1894	.05
953	**Tristram, H. B**	Field Study in Ornithology,	R. 1893	23	1894	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
954	**Osten Sacken, C. R.**	Bugonia of the Ancients,	R. 1893	16	1894	.05
955	**Marey, E. J.**	Comparative Locomotion of Animals,	R. 1893	6	1894	.05
956	**Dean, B.**	Marine Biological Stations in Europe,	R. 1893	17	1894	.10
957	**Varigny, H. de**	Air and Life,	R. 1893	26	1894	.05
958	**Daubree, A.**	Deep-sea Deposits,	R. 1893	24	1894	.05
959	**Bryce, J.**	Migrations of Races of Men,	R. 1893	24	1894	
960	**Brinton, D. G.**	The Nation as an Element in Anthropology,	R. 1893	14	1894	.05
961	**Mason, O. T.**	Progress in Anthropology in 1893,	R. 1893	31	1894	.10
962	**Mason, O. T.**	North-American Bows, Arrows and Quivers,	R. 1893	51	1894	
963	**Müller, F. Max**	Oriental Scholarship,	R. 1893	22	1894	.05
964	**Tylor, E. B.**	Stone age basis for oriental study,	R. 1893	10	1894	.05
965	**Berthelot, M.**	Biography of Henry Milne-Edwards,	R. 1893	21	1894	.05
966	**Powell, J. W.**	Tenth Annual Report, Bureau of Ethnology, 1888-89,		852	1893	
967		Report Smithsonian Institution, Pt. 2, 1892-93, Museum,	M.R. 1893	815	1895	
968	**Powell, J. W.**	Eleventh Annual Report Bureau of Ethnology, 1889-90,		601	1894	
969	**Sergi, G.**	Varieties of the Human Species,	M.C. xxxviii	61	1894	
970	**Seymour, P. H.**	Bibliography of Aceto Acetic Ester,	M.C. xxxviii	158	1894	
971	**Magee, W. H.**	Indexes to the literatures of Cerium and Lanthanum,	M.C. xxxviii	45	1895	
972	**Langmuir, A.C.**	Index to literature of Didymium,	M.C. xxxviii	22	1894	
973	**Langley, S. P.**	Report of Secretary Smithsonian Institution for 1893-94,	R. 1894	90	1896	.10
974	**Powell, J. W.**	Twelfth Annual Report, Bureau of Ethnology, 1890-91,		790	1894	
975	**Rockhill, W.W.**	Diary of Journey through Mongolia and Tibet,	*	434	1894	2.00

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
976		Smithsonian Contributions to Knowledge. Vol. XXIX,	S.C. xxix			
977		Smithsonian Miscellaneous Colleclections. Vol. XXXV,	M.C. xxxv	950	1897	
978		Smithsonian Miscellaneous Collections. Vol. XXXVII,	M.C. xxxvii	922	1898	
979		Smithsonian Miscellaneous Collections. Vol. XXXVIII,	M.C. xxxviii	1017	1898	
980	Morley, E. W.	Densities of Oxygen and Hydrogen,	S.C. xxix	129	1895	1.00
981	Goode & Bean	Oceanic Ichthyology. Part I,	S.C. xxx	618	1895	
982	Goode & Bean	Oceanic Ichthyology. Part II,	S.C. xxxi	53	1895	
983		Smithsonian Contributions to Knowledge. Vol. XXX,	S.C. xxx	628	1895	
984		Smithsonian Contributions to Knowledge. Vol. XXXI,	S.C. xxxi	65	1895	
985	Bendire, Chas.	Life Histories, North American Birds. Part II,	S.C. xxxii	529	1895	
986		Smithsonian Contributions to Knowledge. Vol. XXXII,	S.C. xxxii	540	1895	
987	Goode, G. B.	Account of the Smithsonian Institution,	•	38	1895	.05
988	Goode, G. B.	Exhibit of the Smithsonian Institution at Atlanta,	•	37	1895	.05
989	Billings, J. S., Mitchell, S.W., Bergey, D. H.	Expired Air,	S.C. xxix	84	1895	1.00
990	Langley, S. P.	Report of Secretary Smithsonian Institution for 1894-95,	R. 1895	88	1896	.10
991	Rhees, W. J.	List of Smithsonian Publications,	•	90	1896	
992a		Report of Smithsonian Institution, 1893-94,	R. 1894	810	1896	
992b		Report of Smithsonian Institution, Pt. 2, 1893-94. Museum,	M.R. 1894	1056	1896	
993		Proceedings of Regents, Rep't Ex. Com., Acts Congress,	R. 1894	32	1896	.05
994	Harkness, W.	Magnitude of Solar-system,	R. 1894	21	1896	.02
995	Pickering, W.H.	Schiaparelli's Views of Mars.				
	Schiaparelli, Giovanni	The Planet Mars,	R. 1894	18	1896	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
996	Poincaré, M.	Light and Electricity,	R. 1894	13	1896	.02
997	Mendenhall, T. C.	The "Henry,"	R. 1894	14	1896	.02
998	Mascart, M.	Age of Electricity,	R. 1894	22	1896	.05
999	Rücker, A. W.	Terrestrial Magnetism,	R. 1894	19	1896	.05
1000	Janssen, J.	Photographic Photometry,	R. 1894	8	1896	.02
1001	Worthington, A. M.	The Splash of a drop,	R. 1894	17	1896	.05
1002	Wiley, H. W.	Waste and conservation of plant-food,	R. 1894	25	1896	.05
1003	Janssen, J.	Observations on summit of Mont Blanc,	R. 1894	13	1896	.02
1004	Harrington, M. W.	Weather-making,	R. 1894	24	1896	.05
1005	Rees, J. K.	Variation of Latitude,	R. 1894	11	1896	.02
1006	Ruge, S.	Cartography of America up to 1570,	R. 1894	18	1896	.10
1007	Forbes, H. O.	Antarctica,	R. 1894	22	1896	.05
1008	Markham, C. R.	Promotion of Arctic and Antarctic discovery,	R. 1894	27	1896	.05
1009	Wharton, W. J. L.	Physical condition of the ocean,	R. 1894	18	1896	.02
1010	Brooks, W. K.	Origin of the oldest fossils,	R. 1894	20	1896	.05
1011	Fano, G.	Physiology, Chemistry and Morphology,	R. 1894	15	1896	.02
1012	Marey, E. J.	Physiological station at Paris,	R. 1894	24	1896	
1013	Wallace, A. R.	Organic evolution,	R. 1894	25	1896	
1014	Solvay, E.	Electricity and animal life,	R. 1894	16	1896	.02
1015	Billings, J. S., and Peckham, A. W.	Typhoid and colon bacillus,	R. 1894	10	1896	.02
1016	Brunton, T. L.	Modern developments of Harvey's work,	R. 1894	22	1896	.05
1017	Forel, A.	Ants' nests,	R. 1894	29	1896	
1018	Melville, R. D.	Evolution of modern society,	R. 1894	17	1896	.02
1019	Mason, O. T.	Migration and the food-quest,	R. 1894	20	1896	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1020	**Gambier, J. W**	The Guanches,	R. 1894	15	1896	.05
1021	**Binet, A.**	Psychology of Prestidigitation,	R. 1894	19	1896	.10
1022	**Goodyear, W. H.**	Greek horizontal curves,	R. 1894	18	1896	.10
1023	**Howorth, H.**	Methods of archæological research,	R. 1894	21	1896	
1024	**Gowland, W.**	Art of casting bronze in Japan,	R. 1894	45	1896	.10
1025	**Virchow, R.**	Study and Research,	R. 1894	15	1896	.02
1026	**Elsdale, H.**	Scientific problems of the future,	R. 1894	15	1896	.02
1027	**Virchow, R.**	Founding of the Berlin University,	R. 1894	17	1896	.02
1028	**Loewy, M.**	The Institute of France,	R. 1894	14	1896	.02
1029	**Rucker, A. W.**	Helmholtz,	R. 1894	12	1896	.02
1030	**Bonfort, H.**	Heinrich Hertz,	R. 1894	10	1896	.02
1031	**Sherborn, C.D.**	Index to Foraminifera. Part II. Non to Z,	M.C. xxxviii	249	1896	1.00
1032		Smithsonian Meteorological Tables. Revised edition,	M. C. xxxv	333	1896	
		Smithsonian Meteorological Tables. 2d Revised edition, 1897,	M.C. xxxv	333	1897	2.00
1033	**Rayleigh and Ramsay**	Argon,	S.C. xxix	46	1896	1.00
1034	**Duclaux, E.**	Atmospheric actinometry,	S.C. xxix	51	1896	.75
1035	**Holden, E. S.**	Mountain Observatories,	M.C. xxxvii	83	1896	.25
1036	**Powell, J. W.**	Thirteenth Report of Bureau of Ethnology, 1891-92,		521	1896	
1037	**Bergey, D. H.**	Organic matter in the air,	M.C. xxxix	30	1896	.25
1038	**Gray, Thos.**	Smithsonian Physical Tables,*	M.C. xxxv	337	1896	2.00
1039	**Phillips, P. L.**	Virginia cartography,	M.C. xxxvii	85	1897	.25
1040		Proceedings of Regents: Executive Com., Acts of Congress, etc.,	R. 1895	35	1896	.05
1041	**Schuster, A.**	Atmospheric electricity,	R. 1895	18	1896	.02
1042	**Creak, E. W.**	Magnetic Observations,	R. 1895	11	1896	.02
1043	**Stevens, W. L. C.**	Optics,	R. 1895	20	1896	.02

---

* Revised in 1897 and in 1903. The last revised edition is the only one available.

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1044	**Varigny, H. de**	Air and Life,	R. 1895	69	1896	.05
1045	**Russell, F. A. R.**	Atmosphere, life and health,	R. 1895	148	1896	.10
1046	**Cohen, J. B.**	Air of Towns,	R. 1895	41	1896	.10
1047	**Billings, Mitchell, Bergey**	Expired air,	R. 1895	26	1896	
1048	**Dubois, R.**	Physiological light,	R. 1895	21	1896	.02
1049	**Herdman, W. A.**	Oceanography, bionomics, aquiculture,	R. 1895	24	1896	.02
1050	**Thiselton-Dyer, W. T.**	Botanical work of British Association,	R. 1895	23	1896	.02
1051	**Graff, L.**	Zoölogy since Darwin,	R. 1895	17	1896	.02
1052	**Welch, W. A.**	Modern scientific laboratories,	R. 1895	14	1896	.02
1053	**Hamy, E. T.**	Yellow-races,	R. 1895	15	1896	.02
1054	**Sittig, O.**	Compulsory migrations in the Pacific,	R. 1895	19	1896	.05
1055	**Sapper, C.**	Old Indian Settlements,	R. 1895	21	1896	.02
1056	**Fewkes, J. W.**	Cliff villages, Arizona,	R. 1895	34	1896	
1057	**Petrie, W. M. Flinders**	Race and Civilization,	R. 1895	14	1896	.02
1058	**Collignon, M.**	Polychromy in Greek statuary,	R. 1895	25	1896	.02
1059	**Powell, J. W.**	Primitive peoples and environment,	R. 1895	15	1896	.02
1060	**Mason, O. T.**	Environment and human industries,	R. 1895	29	1896	.02
1061	**Hubbard, G. G.**	Japanese nation,	R. 1895	17	1896	.02
1062	**Fewkes, J. W.**	Tusayan ritual,	R. 1895	20	1896	.02
1063	**McGee, W J**	Institutions and Environment,	R. 1895	13	1896	.02
1064		Saturday Lectures. Environment. (Includes 1059-1063),	R. 1895	89	1896	
1065	**Simon, J.**	Centennial of Institute of France,	R. 1895	17	1896	.02
1066	**Barnes, C. L.**	Science in early England,	R. 1895	15	1896	.02
1067	**Armstrong, H. E.**	Place of research in education,	R. 1895	18	1896	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1068	**Gill, Theo.**	Huxley and his work,	R. 1895	23	1896	.02
1069	**Sternberg, G. M.**	Pasteur,	R. 1895	8	1896	.02
1070	**Mendenhall, T. C.**	Helmholtz,	R. 1895	9	1896	.02
1071	**Varigny, H. de**	Air and life. (Same as 1044),	M.C. xxxix	69	1896	.20
1072	**Russell, F. A. R.**	Atmosphere, life and health. (Same as 1045),	M.C. xxxix	148	1896	.25
1073	**Cohen, J. B.**	Air of Towns. (Same as 1046),	M.C. xxxix	41	1896	.25
1074	**Langley, S. P.**	Report of Secretary, Smithsonian Institution for 1895-96,	R. 1896	79	1898	.10
1075	**Clarke, F. W.**	Atomic weights,	M.C. xxxviii	376	1897	2.00
1076	**Bolton, H. C.**	Catalogue of Scientific Periodicals,	M.C. xl	1254	1897	3.50
1077	**McAdie, A.**	Aero-physical observatory,	M.C. xxxix	30	1897	.10
1078		Report of Smithsonian Institution for 1894-95,	R. 1895	880	1896	
1079	**Powell, J. W.**	Fourteenth Report of Bureau of Ethnology for 1892-93. Part I,		698	1897	
1080	**Powell, J. W.**	Fourteenth Report of Bureau of Ethnology for 1892-93. Part II,		497	1897	
1081		List of Foreign Correspondents of Smithsonian Institution, 1897,		340	1897	.50
1082	**Langley, S. P.**	Memorial of G. Brown Goode,	*	30	1897	.02
1083	**Powell, J. W.**	Fifteenth Report of Bureau Ethnology for 1893-94,		487	1897	
1084	**Howe, J. L.**	Bibliography of Platinum metals,	M.C. xxxviii	318	1897	.75
1085	**Powell, J. W.**	Sixteenth Report of Bureau American Ethnology for 1894-95,		445	1897	
1086	**Goode, G. B.**	History, first Half-Century of the Smithsonian Institution, 1846-96,	*	866	1897	12.50
1087	**Holden, E. S.**	Earthquakes on Pacific coast,	M.C. xxxvii	257	1898	.50
1088	**Langley, S. P.**	Report of Secretary, Smithsonian Institution for 1896-97,	R. 1897	82	1898	.10
1089		Report of Smithsonian Institution, Pt. 2, 1894-95. Museum,	M.R. 1895	1100	1897	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1090	**Mathews, J. A.**	Bibliography of metallic carbides,	M.C. XXXVIII	32	1898	.25
1091	**Rhees, W. J.**	List of Smithsonian publications, April, 1898,	*	29	1898	
1092		Smithsonian Miscellaneous Collections. Vol. XXXIX,	M.C. XXXIX	831	1899	
1093		Smithsonian Miscellaneous Collections. Vol. XL,	M.C. XL	1259	1898	
1094		Proceedings of Regents: Executive Com., Acts Congress, etc., 1896,	R. 1896	43	1898	.05
1095	**Newcomb, S.**	Problems of Astronomy,	R. 1896	12	1898	.02
1096	**Koenigsberger, L.**	Helmholtz principles, Mathematics and Mechanics,	R. 1896	34	1898	.05
1097	**Cornu, A.**	Phenomena of the Upper atmosphere,	R. 1896	11	1898	.02
1098	**Dewar, J.**	Researches on Liquid air,	R. 1896	16	1898	.02
1099	**Inwards, R.**	Meteorological Observatories,	R. 1896	20	1898	.02
1100	**Wiener, O.**	Color photography,	R. 1896	41	1898	.02
1101	**Duncan, L.**	Transmission of Electrical energy,	R. 1896	17	1898	.02
1102	**Martin, T. C.**	Utilization of Niagara,	R. 1896	12	1898	.02
1103	**Le Conte, J.**	Earth-crust movements,	R. 1896	14	1898	.02
1104	**Thomson, J. P.**	Physical Geography of Australia,	R. 1896	30	1898	.02
1105	**Markham, A. H.**	Arctic Explorations,	R. 1896	26	1898	.02
1106	**Thurston, R. H.**	Animal as a prime-mover,	R. 1896	44	1898	.02
1107	**Foster, M.**	Advances in Medicine, Surgery, etc.,	R. 1896	28	1898	.02
1108	**Burdon-Sanderson, J.**	Ludwig and Modern physiology,	R. 1896	17	1898	.02
1109	**Gage, S. H.**	Life revealed by the Microscope,	R. 1896	18	1898	.02
1110	**Murray, J.**	Marine organisms,	R. 1896	15	1898	.02
1111	**Heim, Dr.**	Relations between Plants and Ants,	R. 1896	47	1898	.05
1112	**Gill, Theo.**	Questions of Nomenclature,	R. 1896	29	1898	.02
1113	**Schweinitz, E. A. de**	War with Microbes,	R. 1896	14	1898	.02
1114	**Roberts-Austen, W. C.**	Rarer metals,	R. 1896	21	1898	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1115	**Fewkes, J. W.**	Pueblo ruins, Arizona,	R. 1896	25	1898	
1116	**Williams, T.**	Was Primitive man a Savage?	R. 1896	10	1898	
1117	**Meyer, H.**	Bows and arrows of central Brazil,	R. 1896	44	1898	
1118	**De Morgan, J.**	Account of Egyptian Institute,	R. 1896	24	1898	.02
1119	**Goode, G. B.**	Smithsonian Institution at Atlanta Exposition,	R. 1896	25	1898	.02
1120	**Spofford, A. R.**	Memoir of Dr. J. M. Toner,	R. 1896	9	1898	.02
1121	**Rhees, W. J.**	Memoir of William Bower Taylor,	R. 1896	14	1898	.02
1122	**Woodward, H. B.**	Memoir of Joseph Prestwich,	R. 1896	12	1898	.02
1123	**Maspero, G.**	Memoir of Henry Brugsch,	R. 1896	8	1898	.02
1124	**Allen, H.**	Memoir of J. A. Ryder,	R. 1896	17	1898	.02
1125	**Bergey, D. H.**	Animal resistance to disease,	M.C. xxxix	10	1898	.05
1126	**Lummer, O., & Pringsheim, E.**	Ratio of Specific heats,	S.C. xxix	34	1898	.25
1127		Proceedings of Regents: Executive Committee, Acts Congress, etc.,	R. 1897	39	1898	.05
1128	**Newcomb, S.**	Aspects of American Astronomy,	R. 1897	17	1898	.02
1129	**Holden, E. S.**	Beginnings of American Astronomy,	R. 1897	10	1898	.02
1130	**Darwin, G. H.**	Evolution of Satellites,	R. 1897	18	1898	.02
1131	**Thomson, E.**	Electrical advance in ten years,	R. 1897	14	1898	.02
1132	**Röntgen, W. C.**	The X-rays,	R. 1897	21	1898	.02
1133	**Thomson, J. J.**	Cathode Rays,	R. 1897	14	1898	.02
1134	**Langley, S. P.**	Experiments in Mechanical flight,	R. 1897	15	1898	.02
1135	**Huffaker, E. C.**	Soaring flight,	R. 1897	26	1898	
1136	**Bolton, H. C.**	Revival of Alchemy,	R. 1897	13	1898	.02
1137	**Crookes, W.**	Diamonds,	R. 1897	19	1898	.02
1138	**Winkler, C.**	Discovery of new elements,	R. 1897	12	1898	.02
1139	**Ramsay, W.**	An undiscovered gas,	R. 1897	14	1898	.02
1140	**Moissan, H.**	Fluorine,	R. 1897	16	1898	.02
1141	**Lummer, O.**	Light and its artificial production,	R. 1897	29	1898	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1142	**Graffigny, H. de**	Explorations of the Upper atmosphere,	R. 1897	18	1898	.02
1143	**Rotch, A. L.**	Kites—Blue-hill Observatory,	R. 1897	10	1898	.02
1144	**Stevenson, J.J.**	Debt of the World to pure science,	R. 1897	14	1898	.02
1145	**Kelvin, Lord**	Age of the earth,	R. 1897	23	1898	.02
1146	**Bell, R.**	Rising of land around Hudson Bay,	R. 1897	11	1898	.02
1147	**Diller, J. S.**	Crater Lake, Oregon,	R. 1897	13	1898	
1148	**Keltie, J. S.**	Function and field of Geography,	R. 1897	21	1898	.02
1149		Letters from the Andrée Party,	R. 1897	14	1898	.02
1150	**Murray, J., and others**	Scientific advantages of Antarctic expedition,	R. 1897	26	1898	.02
1151	**Foster, M.**	Progress in Physiology,	R. 1897	18	1898	.02
1152	**Bailey, L. H.**	Factors of organic evolution,	R. 1897	25	1898	.02
1153	**Thayer, A. H.**	Protective coloration,	R. 1897	8	1898	.02
1154	**Miall, L. C.**	Life-history studies of animals,	R. 1897	26	1898	.02
1155	**Hamy, E. T.**	Royal menagerie of France,	R. 1897	13	1898	.02
1156	**Trelease, W.**	Botanical opportunity,	R. 1897	20	1898	.02
1157	**Ellis, H.**	Mescal, an Artificial paradise,	R. 1897	14	1898	.02
1158	**Nadaillac, M. de**	Unity of human species,	R. 1897	23	1898	.02
1159	**Petrie, W. M. Flinders**	Research in Egypt,	R. 1897	7	1898	.02
1160	**Fletcher, A. C.**	Study of Omaha tribe,	R. 1897	12	1898	.02
1161	**Phillips, W. A.**	Stone Implements, Lake Michigan,	R. 1897	16	1898	
1162	**Fewkes, J. W.**	Preliminary account of work in Arizona,	R. 1897	25	1898	
1163	**Green, B. R.**	The Library of Congress,	R. 1897	10	1898	.05
1164	**Hoar, G. F. & Wright, C. D.**	Memoirs of F. A. Walker,	R. 1897	21	1898	.02
1165		Report of Smithsonian Institution for 1895-96,	R. 1896	778	1898	
1166		Report of Smithsonian Institution, Pt. 2, 1895-96, Museum,	M.R. 1896	1131	1898	
1167		Report of Smithsonian Institution for 1896-97,	R. 1897	733	1898	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1168		Report of Smithsonian Institution, Pt. 2, 1896-97. Museum, Pt. I,	M.R. 1897	1048	1899	
1169	**Langley, S. P.**	Report of Secretary, Smithsonian Institution for 1897-98,	R. 1898	102	1900	.10
1170	**Bolton, H. C.**	1st Supplement to Bibliography of Chemistry, 1492-1897,	M.C. XXXIX	498	1899	1.50
1171	**Doan, Martha**	Index to Thallium (1861-96),	M.C. XLI	26	1899	.25
1172	**Mason, O. T.**	Latimer and Guesde Porto Rico Collections,	R. 1876 R. 1884	135	1899	.25
1173	**Langmuir, A. C. and Baskerville, C.**	Index to Zirconium,	M.C. XLI	29	1899	.25
1174		Smithsonian Miscellaneous Collections. Vol. XLI,	M.C. XLI	1191	1902	
1175	**Rhees, W. J.**	Price List Smithsonian Publications, Dec. 1899,	•	35	1899	
1176		Report of Smithsonian Institution for 1897-98,	R. 1898	768	1899	
1177		Report of Smithsonian Institution, Pt. 2, 1896-97. Museum, Pt. II (Goode Memorial),	M.R. 1897	527	1901	
1178	**Langley, S. P.**	Report of Secretary Smithsonian Institution for 1898-99,	R. 1899	89	1901	.10
1179	**Powell, J. W.**	Seventeenth Report Bureau American Ethnology, 1895-96. Pt. I,		561	1898	
1180	**Powell, J. W.**	Seventeenth Report Bureau American Ethnology, 1895-96. Part II,		283	1898	
1181		Proceedings Regents: Report Executive Com., Acts of Congress, 1898,	R. 1898	47	1900	.05
1182	**Loewy and Puiseux**	Lunar photography,	R. 1898	19	1900	.05
1183	**Hale, G. E.**	Function of large telescopes,	R. 1898	17	1900	.02
1184	**Lesage, G. L.**	Theory of gravitation,	R. 1898	24	1900	.02
1185	**Guillaume, C.E.**	Extreme infra-red radiations,	R. 1898	7	1900	.02
1186	**Lockyer, Norman**	Chemistry of the stars,	R. 1898	14	1900	.02
1187	**Lechalas, Georges**	Perception of light and color,	R. 1898	20	1900	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1188	**Bidwell, Shelford**	Curiosities of vision,	R. 1898	13	1900	.02
1189	**Niewenglowski, G. H.**	Color photography,	R. 1898	9	1900	.02
1190	**Gray, Thomas**	Development of electrical science,	R. 1898	20	1900	.02
1191	**Thompson, S. P.**	Telegraphy across space,	R. 1898	15	1900	.02
1192	**Preece, W. H.**	Signaling through space without wires,	R. 1898	11	1900	.02
1193	**Dewar, James**	Liquefaction of hydrogen and helium,	R. 1898	10	1900	.02
1194	**Ramsay, Wm.**	Recently discovered gases and the periodic law,	R. 1898	12	1900	.02
1195	**Ramsay, Wm.**	Kinetic theory of gases,	R. 1898	13	1900	.02
1196	**Stokes, H. N.**	Revival of inorganic chemistry,	R. 1898	20	1900	.02
1197	**Bacon, J. M.**	Scientific ballooning,	R. 1898	15	1900	.02
1198	**Geikie, James**	Tundras and steppes of prehistoric Europe,	R. 1898	29	1900	.05
1199	**Gilbert, G. K.**	Modification of Great Lakes by earth movement,	R. 1898	15	1900	.02
1200	**Gregory, J. W.**	Plan of the earth and its causes,	R. 1898	28	1900	.02
1201	**Sollas, W. J.**	Funafuti: The story of a coral atoll,	R. 1898	20	1900	.02
1202	**Thoulet, M. J.**	Oceanography,	R. 1898	21	1900	.02
1203	**Wiesner, Julius**	Relation of plant physiology to other sciences,	R. 1898	20	1900	.02
1204	**Dubois, Eugene**	Pithecanthropus erectus,	R. 1898	17	1900	.05
1205	**Haeckel, Ernst**	Present knowledge of the origin of man,	R. 1898	22	1900	
1206	**Reynaud, G.**	Laws of orientation among animals,	R. 1898	20	1900	.02
1207	**Ward, H. B.**	Fresh water biological stations of the world,	R. 1898	17	1900	.02
1208	**Dastre, A.**	Theory of energy and the living world. Physiology of alimentation,	R. 1898	37	1900	.02
1209	**Howard, L. O.**	Economic status of insects,	R. 1898	21	1900	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1210	**Virchow, R.**	Recent advances in science, medicine and surgery,	R. 1898	19	1900	.02
1211	**Peiser, F. E.**	Sketch of Babylonian society,	R. 1898	23	1900	.02
1212	**Berger, Philippe**	Excavations of Carthage,	R. 1898	16	1900	.02
1213	**Watkins, J. Elfreth**	Transportation and lifting of heavy bodies by the ancients,	R. 1898	7	1900	.02
1214	**Brabrook, E. W.**	Past and present of anthropological sciences,	R. 1898	18	1900	.02
1215	**Frobenius, L.**	Origin of African civilizations,	R. 1898	16	1900	.05
1216	**Langkavel, B.**	Dogs and savages,	R. 1898	27	1900	.02
1217	**Berthelot, M.**	Life and works of Brown-Séquard,	R. 1898	22	1900	.02
1218		Report of Smithsonian Institution, Pt. 2, 1897-98. Museum,	M.R. 1898	1312	1900	
1219	**Powell, J. W.**	Eighteenth Report, Bureau of Am. Ethnology for 1896-97. Part I,		575	1899	
1220	**Powell, J. W.**	Eighteenth Report, Bureau of Am. Ethnology for 1896-97. Part II,		478	1899	
1221		Proceedings Regents: Report Executive Committee, Acts of Congress, 1899,	R. 1899	55	1901	.05
1222	**Cornu, A.**	Wave theory of light,	R. 1899	15	1901	.02
1223	**Hele-Shaw, H. S.**	Motion of a perfect liquid,	R. 1899	14	1901	.02
1224	**Thomson, Elihu**	Field of experimental research,	R. 1899	14	1901	.02
1225	**Dewar, James**	Liquid hydrogen,	R. 1899	14	1901	.02
1226	**Crookes, Wm.**	Latest achievements of science,	R. 1899	13	1901	.02
1227	**Bolton, H. C.**	Study of radio-active substances,	R. 1899	10	1901	.02
1228	**Foster, Michael**	Growth of science in the 19th century,	R. 1899	23	1901	.02
1229	**Crookes, Wm.**	Psychical research,	R. 1899	23	1901	
1230	**Stoney, G. J.**	Range of nature's operations which man is competent to study,	R. 1899	18	1901	.02
1231	**Chamberlain, T. C.**	On Lord Kelvin's address on age of the earth as abode fitted for life,	R. 1899	26	1901	.02
1232	**Joly, J.**	Geological age of the earth,	R. 1899	44	1901	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1233	**Ward, L. F.**	Petrified forests of Arizona,	R. 1899	21	1901	.05
1234	**Murray, John**	Floor of the ocean. Evolution of continental and oceanic areas,	R. 1899	22	1901	.02
1235	**Burdon-Sanderson, J.**	Relation of motion in animals and plants to electrical phenomena,	R. 1899	25	1901	.02
1236	**Lucas, F. A.**	Truth about the mammoth,	R. 1899	9	1901	.02
1237	**Lydekker, R.**	Mammoth ivory,	R. 1899	8	1901	.02
1238	**Raspail, Xavièr**	Sense of smell in birds,	R. 1899	9	1901	.02
1239	**Edinger, L.**	Have fishes memory?	R. 1899	22	1901	.02
1240	**Rice, W. N.**	Scientific thought in the nineteenth century,	R. 1899	10	1901	.02
1241	**Falkenberg, Paul**	The garden and its development,	R. 1899	18	1901	.02
1242	**Holmes, W. H.**	Auriferous gravel man in California,	R. 1899	56	1901	.10
1243	**Putnam, F. W.**	Problem in American anthropology,	R. 1899	16	1901	.02
1244	**Winkler, Capt.**	Marshall Island charts,	R. 1899	24	1901	.02
1245	**Virchow, Rudolph**	Peopling of the Philippines,	R. 1899	20	1901	
1246	**Blumentritt, Ferdinand**	List of native tribes and languages of the Philippines,	R. 1899	23	1901	.02
1247	**Strebel, Herman**	Sculptures of Santa Lucia Cozumahualpa,	R. 1899	15	1901	.02
1248		Count von Zeppelin's Dirigible Airship,	R. 1899	5	1901	.02
1249	**White, W. H.**	Progress in steam navigation,	R. 1899	26	1901	.02
1250	**Thurston, R.H.**	Century's progress of the steam-engine,	R. 1899	15	1901	.02
1251	**Roscoe, Henry**	Bunsen memorial lecture,	R. 1899	42	1901	.02
1252		Report of Smithsonian Institution for 1898-99,	R. 1899	735	1901	
1253	**Bolton, H. C.**	Bibliography of chemistry, 1492-1897, Sect. VIII, Academic dissertations,	M.C. XLI	540	1901	1.50
1254		Report of Smithsonian Institution, Pt. 2, 1898-99. Museum,	M.R. 1899	613	1901	

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1255	**Langley, S. P.**	Report of Secretary, Smithsonian Institution, 1899-1900,	R. 1900	119	1901	.10
1256	**Rhees, W. J.**	List of Smithsonian publications, March, 1901,	*	55	1901	
1257	**Langley, S. P.**	Annals of Astrophysical Observatory. Vol. I. 1st ed.,		273	1900	
		Annals of Astrophysical Observatory. Vol. I. 2d ed.,		273	1902	
		The same as Senate Document No. 20, 57th Congress, 1st Session,		341	1902	† 1.65
1258	**Langley, S. P., and Very, F.**	Cheapest form of light,	M.C. XLI	20	1901	.10
1259		List of Observatories,	M.C. XLI	48	1902	.10
1260		Report of Smithsonian Institution for 1899-1900,	R. 1900	824	1901	
1261		Proceedings Regents: Report Executive Com., Acts of Congress,	R. 1900	57	1901	.05
1262	**Lockyer, Norman**	Progress in Astronomy, 19th Cent.,	R. 1900	27	1901	.02
1263	**Langley, S. P.**	Account of Solar Eclipse, May 28, 1900,	R. 1900	10	1901	.02
1264	**Ball, R. S.**	Notes on Mars,	R. 1900	18	1901	.02
1265	**Lockyer, Norman**	Changes of temperature in Indian Ocean,	R. 1900	14	1901	.02
1266		The Pekin Observatory,	R. 1900	4	1901	.02
1267	**Janssen, J.**	The Progress of Aeronautics,	R. 1900	9	1901	.02
1268	**Rayleigh, Lord**	Flight,	R. 1900	4	1901	.02
1269		The Langley Aerodrome,	R. 1900	22	1901	.05
1270	**Curtis, T. E. (Smith, J.W.)**	The Zeppelin Air-ship,	R. 1900	8	1901	.02
1271	**Rotch, A. L.**	The Use of Kites for Meteorological observation,	R. 1900	11	1901	.02
1272	**Ramsay, Wm.**	Progress in Chemistry in 19th Century,	R. 1900	27	1901	.02
1273	**Dewar, James**	Liquid Hydrogen,	R. 1900	8	1901	.02

---

† For sale only by Superintendent of Documents, Government Printing Office, Washington, D.C.

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1274	**Le Conte, Jos.**	A century of Geology,	R. 1900	25	1901	.02
1275	**Sollas, W. J.**	Evolutional Geology,	R. 1900	28	1901	.02
1276	**Mendenhall, T. C.**	Progress in Physics 19th Century,	R. 1900	19	1901	.02
1277	**Thomson, Elihu**	Electricity during 19th Century,	R. 1900	28	1901	.02
1278	**Wood, R. W.**	Photography of sound-waves with cinematograph,	R. 1900	13	1901	.02
1279	**Kropotkin, Prince**	Unsuspected Radiations,	R. 1900	17	1901	.02
1280	**Lewes, V. B.**	Incandescent Mantles,	R. 1900	17	1901	.02
1281	**Carhart, H. S.**	Imperial Physico-Technical Institute in Charlottenburg,	R. 1900	15	1901	.02
1282	**Grosvenor, Gilbert H.**	Geographic Conquests, 19th Cent.,	R. 1900	16	1901	.02
1283	**Grogan, Ewart S.**	Through Africa from Cape to Cairo,	R. 1900	20	1901	.05
1284	**Makaroff, Vice Admiral**	The "Yermak" Ice-breaker.	R. 1900	13	1901	.02
1285	**Hertwig, Oscar**	Growth of Biology in 19th Century,	R. 1900	20	1901	.02
1286	**Lucas, F. A.**	Restoration of Extinct Animals,	R. 1900	16	1901	.10
1287	**Brandt, Karl**	Life in the ocean,	R. 1900	16	1901	.02
1288	**Dugmore, A. R.**	Nature Pictures,	R. 1900	11	1901	.10
1289	**Dugmore, A. R.**	The Outlaw. Study of a Beaver,	R. 1900	8	1901	.05
1290		A Notable Advance in Color Photography,	R. 1900	6	1901	.02
1291	**Varigny, H. de**	Breeding of the Arctic Fox,	R. 1900	9	1901	.02
1292	**Delitzsch, F.**	Discoveries in Mesopotamia,	R. 1900	17	1901	.10
1293	**Sökeland, H.**	Ancient Desemers or Steelyards.	R. 1900	16	1901	.02
1294	**Wu Ting-Fang**	Mutual Helpfulness, China and U.S.	R. 1900	12	1901	.02
1295	**Williams, F.W.**	Chinese Folklore and Western Analogies,	R. 1900	28	1901	.02
1296	**D'Herisson, Count**	Loot of Imperial Palace, Pekin,	R. 1900	37	1901	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1297	**Billings, J. S.**	Progress of Medicine in 19th Cent.,	R. 1900	10	1901	.02
1298	**Sternberg, G. M.**	Malaria,	R. 1900	14	1901	.02
1299	**Sternberg, G. M.**	Transmission of Yellow-fever by Mosquitoes,	R. 1900	19	1901	.02
1300	**Lang, A.**	Psychical Research of the Century,	R. 1900	9	1901	.02
1301	**Langley, S. P.**	The New Spectrum,	R. 1900	12	1901	.02
1302	**Peirce, C. S.**	The Century's Great Men of Science,	R. 1900	9	1901	.02
1303	**Brooks, W. K.**	Lesson of the Life of Huxley,	R. 1900	13	1901	.02
1304	**Fiske, John**	Reminiscences of Huxley,	R. 1900	18	1901	.02
1305	**Rhees, W. J.**	Origin and History, Smithsonian Institution. Vol. I, 1835-87,	M.C. XLII	1097	1901	†1.45
1306	**Rhees, W. J.**	Origin and History, Smithsonian Institution. Vol. II, 1887-99,	M.C. XLIII	955	1901	
1307		Smithsonian Miscellaneous Collections. Vol. XLII,	M.C. XLII	1100	1901	
1308		Smithsonian Miscellaneous Collections. Vol. XLIII,	M.C. XLIII	958	1901	
1309	**Barus, Carl**	Ionized Air,	S.C. XXIX	105	1901	.25
1310		Report of Smithsonian Institution, Pt. 2, 1889-1900. Museum,	M.R. 1900	754	1902	
1311	**Langley, S. P.**	Report of Secretary, Smithsonian Institution for 1900-01,	R. 1901	145	1901	.10
1312	**Tuckerman, A.**	Index Spectroscope, 1887-1900. Continuation of No. 658,	M.C. XLI	376	1901	1.00
1313	**Talbot, H. P. & Brown, J. W.**	Bibliography of Chemistry of Manganese, 1765-1900,	M.C. XLI	132	1902	.50
1314	**Bolton, H. C.**	Chemical Societies of the 19th Century,	M.C. XLI	17	1902	.15
1315		Proceedings Regents; Reports Executive Com., Acts Congress, etc.,	R. 1901	57	1902	.05
1316		The Smithsonian Institution,	R. 1901	9	1902	.02
1317	**Abbot, C. G.**	Recent Astronomical Events,	R. 1901	19	1902	.02
1318	**Rucker, A. W.**	A Model of Nature,	R. 1901	23	1902	.02

---

† For sale only by Superintendent of Documents, Government Printing Office, Washington, D.C.

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1319	**Farrington, O. C.**	Century of study of Meteorites,	R. 1901	7	1902	.02
1320	**Poynting, J. H.**	Recent studies in Gravitation,	R. 1901	18	1902	.02
1321	**Kelvin, Lord**	Ether and gravitational matter through infinite space,	R. 1901	18	1902	.02
1322	**Thomson, J. J.**	Bodies smaller than atoms.	R. 1901	15	1902	.02
1323	**Rotch, A. L.**	Exploration of atmosphere at sea by Kites,	R. 1901	7	1902	.02
1324	**Dewar, James**	Solid Hydrogen,	R. 1901	13	1902	.02
1325	**Thurston, R. H.**	Utilizing the Sun's energy,	R. 1901	10	1902	.02
1326	**Dastre, A.**	New radiations, Cathode rays, Röntgen rays,	R. 1901	18	1902	.02
1327	**Marconi, G.**	Wireless Telegraphy,	R. 1901	14	1902	.02
1328	**Anthony, W. A.**	Transatlantic Telephoning. (M. I. Pupin),	R. 1901	10	1902	.02
1329	**Hammer, W. J.**	Telephonograph. (W. Poulsen),	R. 1901	8	1902	.02
1330	**Herschell, W. J.**	Color photography,	R. 1901	6	1902	.05
1331	**Marey, J.**	History of Chronophotography,	R. 1901	26	1902	.05
1332	**Glazebrook, R. T.**	Nat. Physical Laboratory of Great Britain,	R. 1901	19	1902	.02
1333	**Hobbs, W. H.**	Emigrant diamonds in America,	R. 1901	10	1902	.02
1334	**Merriam, C. H.**	Bogoslof Volcanoes,	R. 1901	11	1902	.02
1335	**Arctowski, H.**	Antarctic voyage of the Belgica, 1897-99,	R. 1901	14	1902	.05
1336	**Kirchhoff, A.**	The sea in the life of the Nations,	R. 1901	13	1902	.02
1337	**Pinchot, G. & Merriam, C. H.**	Forest destruction,	R. 1901	7	1902	.02
1338	**Newell, F. H.**	Irrigation,	R. 1901	19	1902	.05
1339	**Evans, A. J.**	Palace of Minos,	R. 1901	15	1902	.05
1340	**Rivière, E. & Mason, O. T.**	Engraved pictures of Grotto of La Mouthe, France,	R. 1901	13	1902	.02
1341	**Boas, F.**	Mind of Primitive man,	R. 1901	12	1902	.02
1342	**Mason, O. T.**	Traps of American Indians,	R. 1901	15	1902	.02

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1343	**Safford, W. E.**	Abbott Collection from Andaman Islands,	R. 1901	20	1902	.05
1344	**Hough, Walter**	Development of Illumination,	R. 1901	10	1902	.02
1345	**Holmes, W. H.**	Order of development of primal shaping arts,	R. 1901	15	1902	.02
1346	**Walker, G. T.**	Boomerangs,	R. 1901	9	1902	.02
1347	**Galton, F.**	Possible improvement of the human breed.	R. 1901	18	1902	.02
1348	**Langley, S. P.**	Fire-walk Ceremony in Tahiti,	R. 1901	8	1902	.02
1349	**Langley, S. P.**	The Laws of Nature,	R. 1901	10	1902	.02
1350	**Paine, A. B.**	The Children's Room in Smithsonian Institution,	R. 1901	10	1902	.10
1351	**Dastre, A.**	Salt and its physiological uses,	R. 1901	16	1902	.02
1352	**Lyle, Jr., E.P.**	Santos-Dumont circling the Eiffel tower in an air-ship,	R. 1901	20	1902	.02
1353	**Fournier, L. & others**	Automobile races,	R. 1901	19	1902	.02
1354	**Willey, D. A.**	Erection of the Gokteik Bridge,	R. 1901	7	1902	.02
1355	**Fox, F.**	Great Alpine tunnels,	R. 1901	16	1902	.02
1356	**White, C. A.**	Mutation theory of De Vries,	R. 1901	12	1902	.02
1357	**Lucas, F. A.**	Dinosaurs or Terrible Lizards,	R. 1901	9	1902	.05
1358	**Langley, S. P. and Lucas, F. A.**	The greatest flying creature,	R. 1901	13	1902	.02
1359	**Johnston, H. H.**	The Okapi,	R. 1901	8	1902	.05
1360	**Haviland, G. D.**	Termites or White Ants,	R. 1901	14	1902	.05
1361		Wanderings of the Water Buffalo,	R. 1901	6	1902	.02
1362	**Dall, W. H.**	Preservation of marine animals of N. W. coast,	R. 1901	8	1902	.02
1363	**Aflalo, F. G.**	Some private Zoos,	R. 1901	10	1902	.05
1364	**Seton, E. T.**	National Zoo at Washington.	R. 1901	22	1902	.10
1365	**Melville, G. W.**	Submarine boats,	R. 1901	24	1902	.05

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
1366	**Mendenhall, T. C.**	Commemoration of H. A. Rowland,	R. 1901	17	1902	.02
1367		Report of Smithsonian Institution for 1900-'01,	R. 1901	849	1902	
1368		Report of Smithsonian Institution, Pt. 2, 1900-'01. Museum,	M.R. 1901			
1369	**Langley, S. P.**	Report of Secretary, Smithsonian Institution for 1901-02,	R. 1902	119	1902	.10
1370	**Powell, J. W.**	Nineteenth Report, Bureau of Am. Ethnology, 1897-98. Part I,		668	1900	
1371	**Powell, J. W.**	Nineteenth Report, Bureau of Am. Ethnology, 1897-98. Part II,		590	1900	
1372		The International Exchange Service of the Smithsonian Institution,	M.C. XLIV	4	1902	.02
1373	**Barus, Carl**	Structure of the Nucleus,	S.C. XXIX	190	1903	.25
1374	**Joüet, C. H.**	Index to Thorium (1817-1902),*	M.C. XLIV		1903	
1375		Smithsonian Miscellaneous Collections. Vol. XLIV,	M.C. XLIV			
1376	**Rhees, W. J.**	List of Smithsonian Publications, 1846-1903,	M.C. XLIV	100	1903	.25

---

* In press.

TABLES.

Contents of volumes of "Contributions," "Collections," and "Reports." No *sets* of these are now available for distribution.

SMITHSONIAN CONTRIBUTIONS TO KNOWLEDGE. (*Quarto.*)

Vol.	No. in S. series.	Date.	Nos. in Smithsonian series.
I	2	1848	1.
II	26	1851	3, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17, 20, 23.
III	38	1852	22, 24, 29, 30, 32, 33, 35, 36, 37.
IV	39	1852	40.
V	55	1853	41, 42, 43, 44, 45.
VI	56	1854	46, 50, 52, 54, 58, 60, 61.
VII	76	1855	59, 63, 70, 72, 73.
VIII	78	1856	71, 80, 81, 82, 84, 85.
IX	92	1857	79, 83, 86, 88, 90, 94.
X	99	1858	95, 97, 98.
XI	111	1859	89, 100, 104, 113, 114, 126, 127.
XII	112	1860	103, 119, 129, 131, 135.
XIII	151	1863	121, 130, 132, 146, 155, 159, 162, 166.
XIV	184	1865	172, 175, 180, 186, 192.
XV	206	1867	196, 197, 199, 202.
XVI	211	1870	120, 173, 204, 208, 220, 221, 223.
XVII	229	1871	218.
XVIII	246	1872	222, 232, 233, 239.
XIX	272	1874	240, 241, 262.
XX	284	1876	268.
XXI	285	1877	267, 277, 280, 281, 387, 388.
XXII	340	1880	259, 269, 287, 318, 331.
XXIII	346	1881	242, 248, 310, 317, 357.
XXIV	547	1885	353, 443.
XXV	606	1885	383, 489, 509.
XXVI	731	1890	647, 673.
*XXVII	839	....	801, 884.
XXVIII	841	1892	840.
*XXIX	976	....	842, 980, 989, 1033, 1034, 1126, 1309, 1373.
XXX	983	1895	981.
XXXI	984	1895	982.
XXXII	986	1895	985.

---

* Only parts of the volumes yet published.

SMITHSONIAN MISCELLANEOUS COLLECTIONS. (*Octavo.*)

Vol.	S. series. No. in	Date.	Nos. in Smithsonian series.
I	122	1862	31, 87, 148, 153.
II	123	1862	27, 34, 49, 53, 108, 115, 128, 137, 138, 139, 163, 176.
III	124	1862	102, 117, 118, 136.
IV	125	1862	133, 134.
V	158	1864	74, 142, 154.
VI	169	1867	140, 141, 167, 171.
VII	191	1867	143, 144, 145, 156, 160, 161, 165, 177, 183, 200, 201, 203.
VIII	212	1869	137, 164, 168, 178, 189, 194, 205, 207, 210, 219.
IX	213	1869	174, 179.
X	250	1873	190, 227, 231, 234, 235, 236, 237, 238, 243, 245, 252, 257.
XI	273	1874	230, 247, 256, 261, 264, 265.
XII	274	1874	181, 255, 263.
XIII	312	1878	292, 293, 294, 295, 296, 297, 303, 304, 305, 306. (Bulletins N. Museum, 1-10.)
XIV	314	1878	216, 254, 276, 283, 288, 289, 301, 311.
XV	315	1878	258, 266, 279, 282, 291, 300, 302, 309, 316, 319, 320.
XVI	322	1880	253, 270, 321, 324, 325, 334, 335, 344.
XVII	336	1880	328.
XVIII	337	1880	329, 391.
XIX	416	1880	332, 333. (Proceedings N. Museum, Vols. I and II.)
XX	423	1881	497.
XXI	424	1881	327, 330, 356, 417.
XXII	468	1882	425, 464, 465, 467, 471. (Proceedings N. Museum, Vols. III and IV.)
XXIII	475	1882	308, 313, 326, 342, 463. (Bull. N. Museum, 11-15.)
XXIV	496	1883	492. (Bulletin N. Museum, No. 16.)
XXV	504	1883	498, 499, 501, 502, 503.
XXVI	505	1883	349, 469, 490, 507.
XXVII	506	1883	358, 437, 441, 478, 480.
XXVIII	522	1887	538.
XXIX	546	1887	514.
XXX	558	1887	550.
XXXI	559	1888	591.
XXXII	660	1888	658, 659.
XXXIII	662	1888	543, 592, 636, 661.
XXXIV	849	1893	594, 630, 663, 664, 665, 708, 741, 764, 785, 843.
XXXV	977	1897	854, 1032, 1038.
XXXVI	851	1893	850.
XXXVII	978	1898	856, 1031, 1035, 1039, 1087.
XXXVIII	979	1898	969, 970, 971, 972, 1075, 1084, 1090.
XXXIX	1092	1899	1037, 1071, 1072, 1073, 1077, 1125, 1170.
XL	1093	1898	1076.
XLI	1174	1902	1171, 1173, 1253, 1258, 1259, 1312, 1313, 1314.
XLII	1307	1901	1305.
XLIII	1308	1901	1306.
*XLIV	1375	....	1372, 1374, 1376.

---

* Only parts of the volumes yet published.

SMITHSONIAN ANNUAL REPORTS.

No. of report.	No. in S. series.	For year.	Nos. in Smithsonian series.
1	G	1846	A, B, L.
2	H	1847	D, K, F.
3	I	1848	F, J.
4	21	1849	25.
5	28	1850	28.
6	51	1851	51.
7	57	1852	57.
8	67	1853	E, G, H, I, N, O, 21, 28, 51, 57.
9	75	1854	348.
10	77	1855	19.
11	91	1856	34.
12	107	1857	115.
13	109	1858	139, 351.
14	110	1859	110.
15	147	1860	152.
16	149	1861	160.
17	150	1862	150.
18	187	1863	352, 361.
19	188	1864	354, 355, 361, 362.
20	209	1865	360, 364, 371, 584.
21	214	1866	363, 365, 368.
22	215	1867	367, 369.
23	224	1868	370, 372, 373.
24	228	1869	251, 376, 561.
25	244	1870	375, 377, 379.
26	249	1871	378.
27	271	1872	380, 382, 385, 386.
28	275	1873	393, 439, part 1.
29	286	1874	390, 439, part 2.
30	298	1875	393, 394, 595.
31	299	1876	307, 392, 395, 397.
32	323	1877	396, 398, 399, 400, 401, 402, 403, 404.
33	341	1878	405, 406, 407, 408, 411.
34	345	1879	330, 409, 410, 415, 418, 420, 421.
35	442	1880	389, 419, 426, 427, 428, 429, 430, 431, 432, 433, 434 436, 438.
36	515	1881	477, 479, 481, 482, 483, 484, 485, 486, 487, 488, 491
37	540	1882	520, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533 535.
38	593	1883	574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 585 587, 588, 596, 605.
39	623	1884	608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618 620, 621.
	648	1884	(Museum) 732, 733, 734.
40	649	1885	627, 628, 629, 632, 633, 634, 635, 638, 639, 640, 641 643, 644, 645.
	654	1885	(Museum) 724.
41	676	1886	536, 651, 666, 667, 675, 683, 684, 685, 686, 687.
	677	1886	(Museum) 709, 710, 711, 712, 713, 714.
42	689	1887	657, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 705, 706, 707.
	690	1887	(Museum) 715, 716, 717, 718, 719, 720, 721.
43	767	1888	J, 668, 688, 746, 747, 748, 749, 750, 751, 752, 753, 755, 756, 757, 758, 759, 760, 761, 762, 763.
	768	1888	(Museum) 723, 735, 736, 737, 738, 739, 740, 742, 744, 765, 766.

No. of report.	No. in S. series.	For year.	Nos. in Smithsonian series.
44	769	1889	722, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 788, 789, 790, 791.
	770	1889	(Museum) 786, 787, 792, 793, 794, 795, 796, 797, 798, 799,
45	837	1890	771, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 838.
	846	1890	(Museum.)
46	848	1891	836, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883.
	853	1891	(Museum.)
47	885	1892	845, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 919, 920, 921, 922.
	886	1892	(Museum.)
48	925	1893	918, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965.
	967	1893	(Museum.)
49	992*a*	1894	973, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030.
	992*b*	1894	(Museum.)
50	1078	1895	990, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070.
	1089	1895	(Museum.)
51	1165	1896	1074, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124.
	1166	1896	(Museum.)
52	1167	1897	1088, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164.
	1168	1897	(Museum. Part 1.)
	1177	1897	(Museum. Part 2. Goode Memorial.)
53	1176	1898	1169, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217.
	1218	1898	(Museum.)
54	1252	1899	1178, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251.
	1254	1899	(Museum.)

No. of report.	No. in S. series.	For year.	Nos. in Smithsonian series.
55	1260	1900	1255, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304.
	1310	1900	(Museum.)
56	1367	1901	1311, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366.
	1368	1901	(Museum.)

PRICE LIST OF UNITED STATES PUBLIC DOCUMENTS.

FOR SALE BY THE SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, UNION BUILDING, WASHINGTON, D. C.

SMITHSONIAN INSTITUTION.

	Paper.	Cloth.	Sheep.
Annual Report, 1883	$0 60	$0 80	$1 40
1884	60	80	2 25
1885	60	80	1 40
1886	60	80	1 40
1887	50	65	1 25
1888	50	70	1 30
1889	50	70	1 30
1890	55	75	1 30
1891	50	65	1 25
1892	55	70	1 35
1893	90	1 15	1 75
1894	80	1 00	1 60
1895	75	90	1 55
1896	65	80	1 40
1897	80	95	1 55
1898	65	80	1 40
1899	85	95	
1900	1 00	1 10	
1901	1 00	1 25	
Origin and History, 1835-'99, 2 vols	1 05	1 45	

NATIONAL MUSEUM.

Annual Report, 1885		$1 35	$2 00
1886		70	1 30
1887		90	1 50
1888		1 15	1 75
1889		1 10	1 65
1890	$0 70	85	1 60
1891	70	85	1 65
1892	80	1 00	1 60
1893	90	1 15	1 75
1894		1 20	1 90
1895	1 15	1 40	2 15
1896	1 25	1 40	2 15
1897, part 1	1 60	1 75	2 50
part 2 (Goode memorial)	1 10	1 25	
1898	85	1 00	1 85
1899	85	1 00	1 85
1900	1 00	1 15	1 75

	Paper.	Cloth.	Sheep.
Proceedings, vol. 20, 1898		$1 00	
vol. 21, 1899		1 00	
vol. 22, 1900		1 00	
vol. 23, 1901		1 00	
vol. 24, 1902		1 00	
Special Bulletin No. 4, American Hydroids, part 1. The Plumularidæ	$0 50		

BUREAU OF AMERICAN ETHNOLOGY.

	Paper.	Cloth.	Sheep.
Annual Report 14th, 1893, part 1	$1 50	$1 90	$3 00
part 2	1 10	1 50	2 60
15th, 1894	1 20	1 60	2 70
16th, 1895	1 10	1 45	2 60
17th, 1896, part 1	2 50	2 70	3 90
part 2	1 20	1 50	
18th, 1897, part 1	1 30	1 60	2 80
part 2	2 40	2 60	3 90
19th, 1898, part 1 part 2	2 85	3 30	

AMERICAN HISTORICAL ASSOCIATION.

	Paper.	Cloth.	Sheep.
Annual Report, 1890	$0 25	$0 40	$1 00
1896, 2 vols	1 05	1 30	2 55
1897	70	85	1 50
1898	70	85	1 50
1899, 2 vols	1 30	1 50	2 90
1900, 2 vols	55	80	2 10
1901, 2 vols	55	85	

ASTROPHYSICAL OBSERVATORY.

	Paper.	Cloth.	Sheep.
Annals, vol. 1, 1900	$1 65		

NATIONAL SOCIETY OF DAUGHTERS OF AMERICAN REVOLUTION.

	Paper.	Cloth.	Sheep.
First Annual Report, 1890-'97	$0 25		$1 50
Second Annual Report, 1897-'98	50	$0 65	2 00
Third Annual Report, 1898-1900	1 00	1 25	
Fourth Annual Report, 1900-1902	1.00		

PART II

CLASSIFIED LIST

OF

SMITHSONIAN PUBLICATIONS

AVAILABLE FOR DISTRIBUTION

CLASSIFIED LIST
OF
SMITHSONIAN PUBLICATIONS
AVAILABLE FOR DISTRIBUTION.

C. K. = Contributions to Knowledge.
M. C. = Miscellaneous Collections.
R. = Smithsonian Report.

The references to volumes indicate in what volume of a series the article was published.

AERONAUTICS.

Andrée, S. A.—Letters from the Andrée party. 1898. R. 1897	1149	$0 02
Bacon, J. M.—Scientific ballooning. 1899. R. 1898	1197	02
Curtis, T. E. [Smith, J. W.]—Zeppelin air-ship. 1901. R. 1900	1270	02
Janssen, J.—Progress of aeronautics. 1901. R. 1900	1267	02
Langley, S. P.—Aerodrome. 1901. R. 1900	1269	05
Langley, S. P.—Experiments in aerodynamics. 1891. C. K. 27	801	1 00
Langley, S. P.—Experiments in mechanical flight. 1898. R. 1897	1134	02
Langley, S. P.—Greatest flying creature. 1902. R. 1901	1358	02
Langley, S. P.—Internal work of the wind. 1893. C. K. 27	884	50
Lilienthal, Otto.—Flying and soaring. 1894. R. 1893	938	05
Lyle, Jr., E. P.—Santos-Dumont circling Eiffel Tower in air-ship. 1902. R. 1901	1352	02
Rayleigh, Lord.—Flight. 1901. R. 1900	1268	02
Santos-Dumont, Alberto.—See Lyle, Jr., E. P.		
Smith, J. W.—See Curtis, T. E.		
Zeppelin's dirigible air-ship. 1901. R. 1899	1248	02

ANATOMY, PHYSIOLOGY, MEDICINE, SURGERY, AND SANITARY SCIENCE.

Adams, W.—Subcutaneous surgery. Toner lect. No. VI. 1877. M. C. 15	302	$0 10
Agassiz, L., and Fewkes, J. W.—Anatomy of Astrangia Danæ. 1889	671	75
Bergey, D. H.—Animal resistance to disease. 1898. M. C. 39	1125	05
Bergey, D. H.—Organic matter in the air. 1896. M. C. 39	1037	25
Bergey, D. H.—See Billings, Mitchell, and Bergey.		
Bidwell, Shelford.—Curiosities of vision. 1899. R. 1898	1188	02
Billings, J. S.—American inventions, etc., in medicine. 1893. R. 1892	922	05
Billings, J. S.—Progress of medicine in nineteenth century. 1901. R. 1900	1297	02

Billings and Peckham.—Agents in destroying typhoid. 1896. R. 1894	1015	$0 02
Billings, Mitchell, and Bergey.—Expired air. 1895. C. K. 29	989	1 00
Brown-Séquard, C. E.—The brain. Toner lect. No. II. 1877. M. C. 15.	291	10
Brunton, T. L.—Diseases of the heart and circulation. 1896. R. 1894.	1016	05
Burdon-Sanderson, J.—Ludwig and modern physiology. 1898. R. 1896	1108	02
Burdon-Sanderson, J.—Relation of motion in animals and plants to electrical phenomena. 1901. R. 1899	1235	02
Carter, R. B.—Color-vision and color-blindness. 1891. R. 1890	830	05
Cohen, J. B.—Air of towns. 1896. R. 1895	1046	10
(The same.) 1896. M. C. 39	1073	25
Da Costa, J. M.—The heart. Toner lecture No. III. 1874. M. C. 15.	279	10
Dastre, A.—Salt and its physiological uses. 1902. R. 1901	1351	02
Dastre, A.—Theory of energy and the living-world. Physiology of alimentation. 1899. R. 1898	1208	02
Dean, John.—Gray substance of the medulla oblongata. 1864. C. K. 16	173	75
Dubois, Eugene.—Pithecanthropus erectus, a form from ancestral stock of mankind. 1899. R. 1898	1204	05
Dubois, R.—Physiological light. 1896. R. 1895	1048	02
Edinger, L.—Have fishes memory? 1901. R. 1899	1239	02
Ellis, H.—Mescal: A new artificial paradise. 1898. R. 1897	1157	02
Fano, G.—Physiology, chemistry, and morphology. 1896. R. 1894	1011	02
Flint, J. M.—Pharmacopœias of all nations. 1883	560	05
Foster, Michael.—Advances in medicine and surgery. 1898. R. 1896.	1107	02
Foster, Michael.—Progress in physiology. 1898. R. 1897	1151	02
Gage, S. H.—Life revealed by the microscope. 1898. R. 1896	1109	02
Keen, W. W.—Fevers. Toner lecture No. V. 1876. M. C. 15	300	10
Lechalas, Georges.—Perception of light and color. 1899. R. 1898	1187	02
Minot, C. S.—Morphology of the blood corpuscles. 1891. R. 1890	819	02
Mitchell, S. Weir.—See Billings, Mitchell, and Bergey.		
Mitchell and Morehouse.—Anatomy of chelonia. 1863. C. K. 13	159	50
Morehouse, G. R.—See Mitchell and Morehouse.		
Peckham, A. W.—See Billings and Peckham.		
Raspail, Xavièr.—Sense of smell in birds. 1901. R. 1899	1238	02
Russell, F. A. R.—Atmosphere, life, and health. 1896. R. 1895	1045	10
(The same.) 1896. M. C. 39	1072	25
Schweinitz, E. A. de.—War with microbes. 1898. R. 1896	1113	02
Shakespeare, E. O.—Reparatory inflammation. Toner lect. VII. 1879. M. C. 16	321	10
Sternberg, G. M.—Malaria. 1901. R. 1900	1298	02
Sternberg, G. M.—Transmission of yellow fever by mosquitoes. 1901. R. 1900	1299	02
Thurston, R. H.—Animal as a prime mover. 1898. R. 1896	1106	02
Toner Lectures.—See Adams, W.; Brown-Séquard, C. E.; Da Costa, J. M.; Keen, W. W.; Shakespeare, E. O.; Waring, Jr., G. E.; Wood, H. C.; Woodward, J. J.		
Varigny, Henry de.—Air and life. 1896. R. 1895	1044	05
(The same.) 1896. M. C. 39	1071	20
Varigny, Henry de.—Temperature and life. 1891. R. 1890	818	05
Varigny, Henry de.—The air and life. 1894. R. 1893	957	05
Virchow, R.—Recent advances in science: Medicine and surgery. 1899. R. 1898	1210	02
Waring, Jr., George E.—Sanitary drainage. Toner lect. No. VIII. 1880. M. C. 26	349	10
Wood, H. C.—Fever. Toner lecture No. IV. 1875. M. C. 15	282	10
Wood, H. C.—Fever. 1878. C. K. 23	357	1 00
Woodward, J. J.—Cancerous tumors. Toner lect. No. I. 1873. M. C. 15.	266	10

ANTHROPOLOGY, ARCHÆOLOGY, AND ETHNOLOGY.

Allen, G. A.—Manners and customs of the Mohaves. 1891. R. 1890.	828	$0 02
Anthropological Papers. 1883. R. 1882	535	25
Baxter, J.—Antiquities, New Brunswick.		
Bransford, Dr. J. F.—Explorations, Central America in 1881.		
Bron, Dr. R. T.—Remains, White River cañon, Arizona.		
Brown, E. L.—Antiquities, Wisconsin.		
Burns, Frank.—Antiquities, Alabama.		
Chase, H. E.—Shell heaps, Provincetown, Massachusetts.		
Fernandez, Don Leon.—Guatuso Indians of Costa Rica.		
Gray, William.—Antiquities, South Dakota.		
Henderson, Jno. G.—Remains near Naples, Illinois.		
Homsher, Dr. G. W.—Glidwell mound, Indiana.		
Homsher, Dr. G. W.—Remains, White Water river, Indiana.		
Kent, B. W.—Mounds, Putnam county, Georgia.		
Le Baron, J. F.—Gold and other ornaments in Florida.		
Le Baron, J. F.—Remains in Florida.		
Luttrell, Elston.—Antiquities, Alabama.		
Mackie, J. S.—Antiquities, Peru.		
MacLean, J. P.—Antiquities, Illinois.		
MacLean, J. P.—Mounds, Butler county, Ohio.		
MacLean, J. P.—Remains, Blennerhasset's isle, Ohio river.		
Mason, O. T.—Abstracts from anthropological correspondence.		
McAdams, Wm.—Mounds, Mississippi bottom, Illinois.		
Moore, J. H.—Antiquities, Arkansas.		
Null, J. M.—Aboriginal structures, Carroll county, Tennessee.		
Parish, Sidney.—Antiquities, Tennessee.		
Poynter, R. H.—Antiquities, Arkansas.		
Reed, J. W. K.—Antiquities, Pennsylvania.		
Richardson, A. S.—Antiquities, Virginia.		
Simons, W. H.—Shell heaps, Charlotte harbor, Florida.		
Smith, J. P.—Antiquities, Washington county, Maryland.		
Stubbs, C. H.—Antiquities, Maryland.		
Van Allen, G. C.—Mounds, Henry county, Iowa.		
Williamson, J. M.—Mounds, Carroll county, Illinois.		
Woods, E. H.—Antiquities, North Carolina.		
Anthropological Papers. 1891. R. 1899	781	25
Topinard, P.—Last steps in genealogy of man.		
Unset, Ingelwald.—Scandinavian archæology.		
Virchow, R.—Anthropology in last twenty years.		
Anthropological Society, Washington.—Trans., Vol. I. 1882. M. C. 25	501	25
Anthropological Society, Washington.—Trans., Abstract, Vol. I, 1879-'81. 1883. M. C. 25	502	25
Anthropological Society, Washington.—Trans., Vol. II. 1883	544	25
Anthropological Society, Washington.—Trans., Vol. III. 1886. M. C. 34	630	25
Berger, Philippe.—Excavations of Carthage. 1899. R. 1898	1212	02
Blumentritt, Ferdinand.—List of native tribes and languages of the Philippines. 1901. R. 1899	1246	02
Boas, Franz.—Mind of primitive man. 1902. R. 1901	1341	02
Brabrook, E. W.—Past and present of anthropological sciences. 1899. R. 1898	1214	02
Brackett, W. S.—Indian remains on Yellowstone. 1893. R. 1892	910	05
Bransford, J. F.—Archæological researches, Nicaragua. 1881. C. K. 25	383	1 00
Brinton, D. G.—The nation in anthropology. 1894. R. 1893	960	05
Collignon, Maxime.—Polychromy in Greek statuary. 1896. R. 1895.	1058	02
Conant, L. L.—Primitive number systems. 1893. R. 1892	911	05
Cope, E. D.—Contents of a bone cave in Anguilla. 1883. C. K. 25	489	50
Davis, J. W.—Chronology of the human period. 1890. R. 1888	756	05
Delitzsch, F.—Discoveries in Mesopotamia. 1901. R. 1900	1292	10
De Morgan, J.—Antiquities of Egypt. 1898. R. 1896	1118	02

Dubois, Eugene.—Pithecanthropus erectus, a form from ancestral stock of mankind. 1899. R. 1898	1204	$0 05
Evans, A. J.—Palace of Minos. 1902. R. 1901	1339	05
Fewkes, J. W.—Tusayan ritual. 1896. R. 1895	1062	02
Fletcher, A. C.—Study of Omaha tribe. The totem. 1898. R. 1897	1160	02
Frobenius, L.—Origin of African civilizations. 1899. R. 1898	1215	05
Galton, Francis.—Possible improvement of the human breed. 1902. R. 1901	1347	02
Gambier, J. W.—Guanches. 1896. R. 1894	1020	05
Gibbs, George.—Tinneh Indians of British and Russian America: 1, Eastern Tinneh, B. R. Ross; 2, Loucheux Indians, W. L. Hardisty; 3, Kutchin tribes, Strachan Jones. 1866. R. 1866	365	10
Goodyear, Wm. H.—Greek horizontal curves at Nimes. 1896. R. 1894.	1022	10
Gore, J. H.—Tuckahoe or Indian bread. 1881. R. 1881	482	05
Haldeman, S. S.—Polychrome bead from Florida. 1878. R. 1877	404	05
Hamy, E. T.—Home of the troglodytes. 1893. R. 1891	875	05
Hamy, E. T.—Yellow races. 1896. R. 1895	1053	02
Hardisty, W. L.—See Gibbs, George.		
Henry, Joseph.—Circular, American archæology. 1878. M. C. 15	316	02
Henry, Joseph.—Circular, archæology and ethnology. 1867. M. C. 8.	205	02
Holmes, W. H.—Auriferous gravel man in California. 1901. R. 1899.	1242	10
Holmes, W. H.—Order of development of the primal shaping arts. 1902. R. 1901	1345	02
Howitt, A. W.—Australian group relations. 1885. R. 1883	596	05
Hubbard, G. G.—Japanese nation. 1896. R. 1895	1061	02
Indians, North American, List of photo. portraits of. 1867. M. C. 14.	216	10
Jones, Strachan.—See Gibbs, George.		
Kengla, L. P.—Archælogical map of the District of Columbia. 1883.	537	02
Langkavel, B.—Dogs and savages. 1899. R. 1898	1216	02
Langley, S. P.—Fire walk ceremony in Tahiti. 1902. R. 1901	1348	02
Lockyer, J. Norman.—Early temple builders. 1894. R. 1893	929	05
McGee, W J—Institutions and environment. 1896. R. 1895	1063	02
Mason, O. T.—Anthropological investigations in 1879. 1881. R. 1879.	420	10
Mason, O. T.—Environment and human industries. 1896. R. 1895	1060	02
Mason, O. T.—Latimer and Guesde Porto Rico collections. 1899. R. 1876 and '84	1172	25
Mason, O. T.—Progress in anthropology in 1881. 1883. R. 1881	488	10
Mason, O. T.—Progress in anthropology in 1887-'88. 1890. R. 1888	755	10
Mason, O. T.—Progress in anthropology in 1889. 1891. R. 1889	782	10
Mason, O. T.—Progress in anthropology in 1890. 1891. R. 1890	826	10
Mason, O. T.—Progress in anthropology in 1891. 1893. R. 1891	876	10
Mason, O. T.—Progress in anthropology in 1892. 1893. R. 1892	904	10
Mason, O. T.—Progress in anthropology in 1893. 1894. R. 1893	961	10
Mason, O. T.—Traps of the American Indians. 1902. R. 1901	1342	02
Matthews, Washington.—Navajo dye-stuffs. 1893. R. 1891	880	05
Melville, R. D.—Evolution of modern society. 1896. R. 1894	1018	02
Montelius, Oscar.—Age of bronze in Egypt. 1891. R. 1890	825	05
Morgan, L. H.—Circular on relationship. 1860. M. C. 2	138	02
Müller, F. Max.—Oriental scholarship. 1894. R. 1893	963	05
Nadaillac, M. de.—Unity of the human species. 1898. R. 1897	1158	02
Packard, R. L.—Pre-Columbian copper-mining. 1893. R. 1892	919	05
Peiser, F. E.—Sketch of Babylonian Society. 1899. R. 1898	1211	02
Petrie, W. M. Flinders.—Race and civilization. 1898. R. 1895	1057	02
Petrie, W. M. Flinders.—Recent research in Egypt. 1898. R. 1897.	1159	02
Pickering, Charles.—Gliddon mummy case. 1867. C. K. 16	208	25
Powell, J. W.—Primitive peoples and environment. 1896. R. 1895.	1059	02
Putnam, F. W.—Problem in American anthropology. 1901. R. 1899.	1243	02
Rau, Charles.—Anthropological articles. 1882. R. 1863-'77	440	25
Rau, Charles.—Gold ornament in a mound in Florida. 1878. R. 1877.	403	05
Rau, Charles.—Prehistoric fishing. 1884. C. K. 25	509	2 00
Rau, Charles.—Stock-in-trade of an aboriginal lapidary. 1878. R. 1877	402	05
Reuleaux, F.—Technology and civilization. 1891. R. 1890	831	05

Rivière, Emile, and Mason, O. T.—Engraved pictures of the grotto of La Mouthe, France. 1902. R. 1901	1340	$0 02
Rockhill, W. W.—Diary of journey in Mongolia and Tibet. 1894	975	2 00
Rockhill, W. W.—Explorations in Mongolia and Tibet. 1893. R. 1892.	916	05
Romanes, G. J.—Weismann's theory of heredity. 1891. R. 1890	820	05
Ross, B. R.—See Gibbs, George.		
Safford, W. E.—Abbott collection from the Andaman Islands. 1902. R. 1901	1343	05
Sapper, C.—Old Indian settlements in Central America. 1896. R. 1895.	1055	02
Shute, D. K.—Anthropology of the brain. 1893. R. 1892	912	05
Sittig, O.—Compulsory migrations in the Pacific. 1896. R. 1895	1054	05
Snyder, J. F.—Primitive urn burial. 1891. R. 1890	827	05
Snyder, J. F.—Were the Osages mound-builders? 1890. R. 1888	757	05
Sökeland, H.—Ancient desemers or steelyards. 1901. R. 1900	1293	02
Strebel, Herman.—Sculptures Santa Lucia Cozumahualpa. 1901. R. 1899	1247	02
Swan, J. G.—Haidah Indians. 1874. C. K. 21	267	75
Swan, J. G.—Indians of Cape Flattery. 1870. C. K. 16	220	75
Taylor, I.—Prehistoric races of Italy. 1891. R. 1890	824	05
Thompson, R. J.—Aboriginal mounds, Seneca Co., Ohio. 1893. R. 1892.	909	05
Tregear, E.—Polynesian bow. 1893. R. 1892	920	05
Tylor, E. B.—Stone age basis for oriental study. 1894. R. 1893	964	05
Walker, G. T.—Boomerangs. 1902. R. 1901	1346	02
Wanner, A.—Indian hunting ground, York Co., Pa. 1893. R. 1892.	908	05
Weismann, A.—See Romanes, G. J.		
Williams, F. W.—Chinese folklore and western analogies. 1901. R. 1900	1295	02
Wilson, Thomas.—Criminal anthropology. 1891. R. 1890	829	10
Wilson, Thomas.—Primitive industry. 1893. R. 1892	906	05
Winkler, Capt.—Marshall Island charts. 1901. R. 1899	1244	02
Wu-ting-fang.—Mutual helpfulness. China and the U. S. 1901. R. 1900	1294	02

ASTRONOMY.

Abbot, C. G.—Recent astronomical events. 1902. R. 1901	1317	$0 02
Alexander, Stephen.—Harmonies of the solar system. 1875. C. K. 21	280	50
Ball, R. S.—Notes on Mars. 1901. R. 1900	1264	02
Boehmer, G. H.—List of astronomical observatories. 1886. R. 1885.	536	05
Boehmer, G. H.—Report on astronomical observatories. 1889. R. 1886.	675	10
Boehmer, G. H.—See Holden and Boehmer.		
Clerke, A. M.—Stellar numbers and distances. Sun's motion. Southern observatory. 1893. R. 1891	860	05
Darwin, G. H.—Evolution of satellites. 1898. R. 1897	1130	02
Farrington, O. C.—Century of the study of meteorites. 1902. R. 1901.	1319	02
Gilliss, J. M.—Eclipse of the sun Sept. 7, 1858. 1859. C. K. 11	100	10
Guillaume, C. E.—Extreme infra-red radiations. 1899. R. 1898	1185	02
Hale, G. E.—Function of large telescopes. 1899. R. 1898	1183	02
Harkness, Wm.—Magnitude of the solar system. 1896. R. 1894	994	02
Hastings, C. S.—History of the telescope. 1893. R. 1892	889	05
Holden, E. S.—Beginnings of American astronomy. 1898. R. 1897	1129	02
Holden, E. S.—Index catalogue of nebulæ, etc. 1877. M. C. 14	311	50
Holden, E. S.—Mountain observatories. 1896. M. C. 37	1035	25
Holden, E. S.—Progress in astronomy, 1881. 1883. R. 1881	483	10
Holden, E. S.—Progress in astronomy, 1883. 1884. R. 1883	574	10
Holden, E. S.—Progress in astronomy, 1884. 1885. R. 1884	609	10
Holden and Boehmer.—Astronom. observatories, 1880. 1881. R. 1880.	438	10
Huggins, William.—Celestial spectroscopy. 1893. R. 1891	859	10
Janssen, J.—Photographic photometry. 1896. R. 1894	1000	02
Kane, E. K.—Astronomical observations Arctic seas. 1860. C. K. 12.	129	25
Langley, S. P.—Account of solar eclipse, May 28, 1900. 1901. R. 1900	1263	02
Langley, S. P.—New spectrum. 1901. R. 1900	1301	02

List of observatories. 1902. M. C. 41	1259	$0 10
Lockyer, Norman.—Chemistry of the stars. 1899. R. 1898	1186	02
Lockyer, Norman.—Progress in astronomy, 19th century. 1901. 1900	1262	02
Loewy, M., and Puiseux, P.—Lunar photography. 1899. R. 1898	1182	05
Loomis, Elias.—Aurora borealis. 1884. R. 1865	584	10
Map of the stars near the North pole. 1856	350	02
Newcomb, Simon.—Aspects of American astronomy. 1898. R. 1897	1128	02
Newcomb, Simon.—Integrals of planetary motion. 1874. C. K. 21	281	25
Newcomb, Simon.—Problems of astronomy. 1898. R. 1896	1095	02
Pekin observatory. 1901. R. 1900	1266	02
Pickering and Schiaparelli.—Views regarding Mars. 1896. R. 1894.	995	02
Puiseux, P.—See Loewy and Puiseux.		
Ranyard, A. C.—Lunar crater Tycho. 1894. R. 1893	928	05
Rogers, J. A.—Correction of sextants. 1890. M. C. 34	764	15
Runkle, J. D.—Asteroid supplement to new tables. 1857. C. K. 9	94	25
Runkle, J. D.—New tables for planetary motion. 1856. C. K. 9	79	25
Schiaparelli, Giovanni.—See Pickering and Schiaparelli.		
Stoney, G. J.—Range of nature's operations which man is competent to study. 1901. R. 1899	1230	02
Young, C. A.—Variable stars. 1894. R. 1893	930	02

ASTROPHYSICS.

Langley, S. P.—Account of solar eclipse, May 28, 1900. 1901. R. 1900	1263	$0 02
Langley, S. P.—Annals, Astro-Physical Obs., Sm. Inst., vol. I, 1900.	1257	*1 65
Langley, S. P.—Annals, Astro-Physical Obs., Sm. Inst., vol. I, 1900. 2d ed. 1902	1257	*1 65
List of observatories. 1902. M. C. 41	1259	10
Lockyer, Norman.—Progress in astronomy, nineteenth century. 1901. R. 1900	1262	02

BIBLIOGRAPHY.

Adler, Cyrus.—Progress of oriental science in America. 1890. R. 1888	761	$0 10
Baskerville, C.—See Langmuir and Baskerville.		
Binney, W. G.—Bibliography of N. A. conchology, pt. 1. 1863. M. C. 5	142	2 00
Binney, W. G.—Bibliography of N. A. conchology, pt. 2. 1864. M. C. 9	174	2 00
Bolton, H. C.—Bibliography of chemistry, 1492-1892. 1893. M. C. 36.	850	3 50
Bolton, H. C.—Bibliography of chemistry, 1492-1897, 1st Supp. 1899. M. C. 39	1170	1 50
Bolton, H. C.—Bibliography of chemistry, 1492-1897. Section VIII, Academic dissertations. 1901. M. C. 41	1253	1 50
Bolton, H. C.—Chemical societies, 19th Century. 1902. M. C. 41	1314	15
Bolton, H. C.—Scientific periodicals, 1665-1895. 1897. M. C. 40	1076	3 50
Catalogue of publications of societies, etc. 1866. M. C. 9	179	1 00
Doan, Martha.—Index to thallium, 1861-1896. 1899. M. C. 41	1171	25
Flint, J. M.—Pharmacopœias of all nations. 1883	560	05
Holden, E. S.—Index catalogue of nebulæ, etc. 1877. M. C. 14	311	50
Howe, J. L.—Bibliography of platinum metals, 1748-1896. 1897. M. C. 38	1084	75
Jewett, C. C.—Construction of catalogues of libraries. 1853	47	25
Jewett, C. C.—Public libraries in the United States. 1851. R. 1849.	25	25
Joüet, C. H.—Index to thorium, 1817-1902. 1903. M. C. 44	1374	
Langmuir, A. C., and Baskerville, C.—Index to zirconium. 1899. M. C. 41	1173	25
List of foreign correspondents. 1897	1081	50

---

* For sale only by Superintendent of Documents, Government Printing Office, Washington, D. C.

Mathews, J. A.—Bibliography of Metallic carbides. 1898. M. C. 38.	1090	$0 25
Rhees, W. J.—Catalogue of Smithsonian publications. 1882. M. C. 27.	478	25
Rhees, W. J.—List, Smithsonian publications, 1846-1903. 1903	1376	25
Sherborn, C. D.—Index to foraminifera, pt. 1, A to Non. 1893. M. C. 37	856	1 00
Sherborn, C. D.—Index to foraminifera, pt. 2, Non to Z. 1896. M. C. 37	1031	1 00
Talbot, H. P., and Brown, J. W.—Bibliography of Chemistry of Manganese. 1902. M. C. 41	1313	50
Traphagen, F. W.—Index to columbium, 1801-'87. 1888. M. C. 34.	663	25
Tuckerman, A.—Bibliography, chemical influence, light. 1891. M. C. 34	785	25
Tuckerman, A.—Index to the spectroscope. 1888. M. C. 32	658	1 00
Tuckerman, A.—Index to the spectroscope, 1887-1900. 1902. M. C. 41	1312	1 00

See also—

Anatomy, etc.—	Billings, Mitchell, and Bergey	989	.....
	Flint, J. M.	560	.....
	Keen, W. W.	300	.....
Anthropology.—	Langkavel, B.	1216	.....
	Mason, O. T.	488, 755, 782, 826, 876, 904, 961	.....
Astronomy.—	Holden, E. S.	574, 609	.....
Biography.—	Dana and Farlow	763	.....
	Dana, J. D.	707	.....
	Henry, Joseph	356	.....
	Newton, H. A.	833	.....
Biology.—	Gage, S. H.	1109	.....
Chemistry.—	Clarke, F. W.	659	.....
Geology.—	Dana, E. S.	531, 580, 615, 639, 703, 753	.....
	Darton, N. H.	697	.....
	Rockwood, C. G.	616, 634	.....
Meteorology.—	Abbe, C.	528, 577, 612, 751	.....
	Fassig, O. L.	612	.....
Mineralogy.—	Dana, E. S.	531, 580, 615, 639, 703, 753	.....
	Darton, N. H.	697	.....
Miscellaneous.—	Harkness, William	758	.....
Palaeontology.—	Marcou, J. B.	610	.....
	Williams, H. S.	749	.....
Philology.—	Gibbs, G.	161	.....
Physics.—	Barker, G. F.	485, 529, 578, 613, 638, 701	.....
	Hallock, William	867	.....
	Harkness, W.	758	.....
Seismology.—	Rockwood, C. G.	616, 634	.....
Vulcanology.—	Rockwood, C. G.	616, 634	.....
Zoölogy.—	Gill, Theodore	230, 487, 533, 582, 617	.....
	Scudder, S. H.	189	.....

BIOGRAPHY.

Allen, Harrison.—Memoir of J. A. Ryder. 1898. R. 1896	1124	$0 02
Bache, Alexander Dallas.—See Henry, Joseph.		
Baird, Spencer Fullerton.—Biographical memoirs of. 1890. R. 1898.	762	10
Berthelot, M. P. E.—Life and works of Brown-Séquard. 1899. R. 1898	1217	02
Berthelot, M. P. E.—Sketch of Henry Milne-Edwards. 1894. R. 1893.	965	05
Bonfort, H.—Sketch of Heinrich Hertz. 1896. R. 1894	1030	02
Brooks, W. K.—Lesson of the life of Huxley. 1901. R. 1900	1303	02
Brown-Séquard, C. E.—See Berthelot, M. P. E.		
Brugsch, Henry.—See Maspero, Gaston.		
Bunsen, R. W.—See Roscoe, H. E.		
Dana, J. D.—Biographical memoir of Arnold Guyot. 1889. R. 1887.	707	05
Dana, J. D., and Farlow, W. G.—Memoirs of Asa Gray. 1890. R. 1888.	763	02
Farlow, W. G.—See Dana, J. D.		

Fiske, John.—Reminiscences of Huxley. 1901. R. 1900	1304	$0 02
Fleischer, Heinrich Leberecht.—See Müller, A.		
Gill, Theodore.—Huxley and his work. 1896. R. 1895	1068	02
Goode, George Brown.—See Langley, S. P.		
Gray, Asa.—See Dana, J. D.		
Guyot, Arnold.—See Dana, J. D. and Farlow, W. G.		
Helmholtz, Hermann von.—See Mendenhall, T. C., and Rucker, A. W.		
Henry, Joseph.—Eulogy on Alexander D. Bache. 1872. R. 1870	379	05
Henry, Joseph.—Memorial of. 1880. M. C. 21	356	50
Henry, Joseph.—See Waite, M. R., and Porter, Noah.		
Hertz, Heinrich.—See Bonfort, H.		
Hoar, G. F., and Wright, C. D.—Memoir of F. A. Walker. 1898. R. 1897	1164	02
Huxley, Thomas Henry.—See Brooks, W. K., Fiske, John, and Gill, Theodore.		
Langley, S. P.—Memorial of George Brown Goode. 1897	1082	02
Liebig, Justus von.—Autobiographical sketch. 1893. R. 1891	869	05
Lommel, Eugene.—Scientific work of George Simon Ohm. 1893. R. 1891	868	05
Loomis, Elias.—See Newton, H. A.		
Maspero, Gaston.—Memoir of Henry Brugsch. 1898. R. 1896	1123	02
Mendenhall, T. C.—Commemoration of Henry A. Rowland. 1902. R. 1901	1366	02
Mendenhall, T. C.—Memorial of Hermann von Helmholtz. 1896. R. 1895	1070	02
Milne-Edwards, Henry.—See Berthelot, M. P. E.		
Müller, A.—Memoir of Heinrich Leberecht Fleischer. 1891. R. 1889.	788	05
Newton, H. A.—Memoir of Elias Loomis. 1891. R. 1890	833	05
Ohm, George Simon.—See Lommel, Eugene.		
Parker, William Kitchen.—Memoir of. 1891. R. 1890	834	05
Pasteur, Louis.—See Roscoe, H. E., and Sternberg, G. M.		
Peirce, C. S.—Century's great men in science. 1901. R. 1900	1302	02
Porter, Noah.—See Waite, M. R.		
Prestwich, Joseph.—See Woodward, H. B.		
Rhees, W. J.—Memoir of William B. Taylor. 1898. R. 1896	1121	02
Roscoe, H. E.—Bunsen Memorial lecture. 1901. R. 1899	1251	02
Roscoe, H. E.—Life work of a chemist (Pasteur). 1891. R. 1889	778	25
Rowland, Henry Augustus.—See Mendenhall, T. C.		
Rücker, A. W.—Hermann von Helmholtz. 1896. R. 1894	1029	02
Ryder, John Adam.—See Allen, H.		
Spofford, A. R.—Memoir of Joseph M. Toner. 1898. R. 1896	1120	02
Sternberg, G. M.—Memorial of Louis Pasteur. 1896. R. 1895	1069	02
Taylor, William Bower.—See Rhees, W. J.		
Toner, Joseph Meredith.—See Spofford, A. R.		
Waite, M. R., and Porter, N.—Addresses, Henry statue. 1884. R. 1883.	585	05
Walker, Francis Amasa.—See Hoar, G. F.		
Woodward, H. B.—Memoir of Joseph Prestwich. 1898. R. 1896	1122	02
Wright, C. D.—See Hoar, G. F.		

BIOLOGY.

Bailey, L. H.—Factors of organic evolution. 1898. R. 1897	1152	$0 02
Biological Papers. 1891. R. 1889	778	25
Burdon-Sanderson, J.—Problems in physiology.		
Roscoe, H. E.—Life-work of a chemist (Pasteur).		
Thiselton-Dyer, W. T.—Botanical biology.		
Turner, W.—Heredity.		
Biological Soc., Washington.—Proceedings, Vol. I, 1880-1882. 1882. M. C. 25	499	25
Vol. II, 1882-1884. 1885.	545	25
Brandt, Karl.—Life in the ocean. 1901. R. 1900	1287	02
Burdon-Sanderson, J.—Biology in relation to other sciences. 1894. R. 1893	952	05

Dastre, A.—Theory of energy and the living-world. Physiology of alimentation. 1899. R. 1898	1208	$0 02
Daubrée, G. A.—Deep-sea deposits. 1894. R. 1893	958	05
Dean, Bashford.—Marine biological stations of Europe. 1894. R. 1893.	956	10
Foster, Michael.—Growth of science in the nineteenth century. 1901. R. 1899	1228	02
Gage, S. H.—Life revealed by the microscope. 1898. R. 1896	1109	02
Gulick, J. T.—Divergent evolution through segregation. 1893. R. 1891	870	10
Heim, F. L.—Relations between plants and ants. 1898. R. 1896	1111	05
Hertwig, Oscar.—Growth of biology in nineteenth century. 1901. R. 1900	1285	02
Marey, E. J.—Comparative locomotion. 1894. R. 1893	955	05
Merriam, C. H.—Geographic distribution of life. 1893. R. 1891	873	10
Miall, L. C.—Life history studies of animals. 1898. R. 1897	1154	02
Murray, J.—Existence and distribution of marine organisms. 1898. R. 1896	1110	02
Osborn, H. F.—Problems in evolution and heredity. 1893. R. 1892	901	10
Reynaud, G.—Laws of orientation among animals. 1899. R. 1898	1206	02
Schweinitz, E. A. de.—War with microbes. 1898. R. 1896	1113	02
Solvay, E.—Electricity and phenomena of animal life. 1896. R. 1894	1014	02
Thayer, A. H.—Protective coloration of animals. 1898. R. 1897	1153	02
Thoulet, M. J.—Oceanography. 1899. R. 1898	1202	02
Thurston, R. H.—Animal as a prime-mover. 1898. R. 1896	1106	02
Varigny, Henry de.—Air and life. 1896. M. C. 39	1071	20
(The same.) 1896. R. 1895	1044	05
Varigny, Henry de.—Temperature and life. 1891. R. 1890	818	05
Varigny, Henry de.—The air and life. 1894. R. 1893	957	05
Ward, H. B.—Fresh-water biological stations of the world. 1899. R. 1898	1207	02
White, C. A.—Mutation theory of De Vries. 1902. R. 1901	1356	02

BOTANY AND FORESTRY.

Bailey, L. H.—Factors of organic evolution. 1898. R. 1897	1152	$0 02
Burdon-Sanderson, J.—Relation of motion in animals and plants to electrical phenomena. 1901. R. 1899	1235	02
Ellis, H.—Mescal: A new artificial paradise. 1898. R. 1897	1157	02
Falkenberg, Paul.—The garden and its development. 1901. R. 1899.	1241	02
Farlow, W. G.—Progress in botany in 1881. 1883. R. 1881	486	05
Farlow, W. G.—Progress in botany in 1882. 1883. R. 1882	532	05
Farlow, W. G.—Progress in botany in 1883. 1884. R. 1883	581	05
Geikie, James.—Tundras and steppes of prehistoric Europe. 1899. R. 1898	1198	05
Goodale, G. L.—Economic botany. 1893. R. 1891	881	05
Heim, F. L.—Relations between plants and ants. 1898. R. 1896	1111	05
Knowlton, F. H.—Progress in botany in 1887-88. 1890. R. 1888	754	10
Newell, F. H.—Irrigation and cultivation. 1902. R. 1901	1338	05
Pinchot, G., and Merriam, C. H.—Forest destruction. 1902. R. 1901.	1337	02
Rodway, James.—Struggle for life in the forest. 1893. R. 1891	871	05
Thiselton-Dyer, W. T.—Botanical work of British Association. 1896. R. 1895	1050	02
Torrey, John.—Batis maritima of Linnæus. 1853. C. K. 6	60	20
Trelease, W.—Botanical opportunity. 1898. R. 1897	1156	02
Treub, T. M.—Tropical botanic garden. 1891. R. 1890	817	05
Ward, L. F.—Check-list of flora of Washington. 1882	461	05
Ward, L. F.—Petrified forests of Arizona. 1901. R. 1899	1233	05
Wiesner, Julius.—Relation of plant physiology to other sciences. 1899. R. 1898	1203	02
Wiley, H. W.—Waste and conservation of plant food. 1896. R. 1894.	1002	05

CHEMISTRY.

Barus, Carl.—Ionized air. 1901. C. K. 29	1309	$0 25
Barus, Carl.—Structure of the Nucleus. 1903. C. K. 29	1373	25
Baskerville, C.—See Langmuir and Baskerville.		
Becker, G. F.—Atomic weights. Constants of Nature, part IV. 1880. M. C. 27	358	1 00
Bolton, H. C.—Bibliography of chemistry, 1492-1892. 1893. M. C. 36	850	3 50
Bolton, H. C.—Bibliography of chemistry, 1492-1897, 1st supp. 1899. M. C. 39	1170	1 50
Bolton, H. C.—Bibliography of chemistry, 1492-1897. Section VIII, Academic dissertations. 1901. M. C. 41	1253	1 50
Bolton, H. C.—Chemical societies of 19th century. 1902. M. C. 41.	1314	15
Bolton, H. C.—Progress in chemistry in 1882. 1883. R. 1882	530	10
Bolton, H. C.—Revival of alchemy. 1898. R. 1897	1136	02
Bolton, H. C.—Study of radio-active substances. 1901. R. 1899	1227	02
Booth, J. C., and Morfit, Campbell.—Chemical arts. 1852. M. C. 2.	27	25
Caldwell, G. C.—The American chemist. 1894. R. 1893	941	05
Clarke, F. W.—Atomic weights. Constants of Nature, part V. 1897. M. C. 38	1075	2 00
Clarke, F. W.—Progress in chemistry in 1887-'88. 1890. R. 1888	752	10
Clarke, F. W.—Specific Gravities. Constants of Nature, part I. 1888. M. C. 32	659	2 00
Color photography. 1901. R. 1900	1290	02
Constants of Nature.—See Becker, G. F., and Clarke, F. W.		
Crookes, William.—Latest achievements of science. 1901. R. 1899.	1226	02
Dewar, James.—Liquefaction of hydrogen and helium. 1899. R. 1898.	1193	02
Dewar, James.—Liquid hydrogen. 1901. R. 1899	1225	02
Dewar, James.—Liquid hydrogen. 1901. R. 1900	1273	02
Dewar, James.—Magnetic properties of liquid oxygen. 1894. R. 1893.	937	05
Dewar, James.—Researches on liquid air. 1898. R. 1896	1098	02
Dewar, James.—Solid hydrogen. 1902. R. 1901	1324	02
Doan, Martha.—Index to thallium, 1861-1896. 1899. M. C. 41	1171	25
Duclaux, E.—Atmospheric actinometry. 1896. C. K. 29	1034	75
Fano, G.—Physiology, chemistry, and morphology. 1896. R. 1894	1011	02
Foster, Michael.—Growth of science in the nineteenth century. 1901. R. 1899	1228	02
Genth, F. A.—See Gibbs, W.		
Gibbs, W., and Genth, F. A.—Ammonia-cobalt bases. 1856. C. K. 9.	88	50
Gray, Thomas.—Development of electrical science. 1899. R. 1898	1190	02
Herschel, William.—Color photography. 1902. R. 1901	1330	05
Howe, J. L.—Bibliography of platinum metals. 1897. M. C. 38	1084	75
Ives, F. E.—Photography in the colors of nature. 1894. R. 1893	934	05
Joly, J.—Geological age of the earth. 1901. R. 1899	1232	02
Jouët, C. H.—Index to thorium, 1817-1902. 1903. M. C. 44	1374	
Langmuir, A. C., and Baskerville, C.—Index to zirconium. 1899. M. C. 41	1173	25
Lewes, V. B.—Incandescent mantles. 1901. R. 1900	1280	02
Lockyer, Norman.—Chemistry of the stars. 1899. R. 1898	1186	02
Lummer, O., and Pringsheim, E.—Ratio of specific heats. 1898 C. K. 29	1126	25
Marey, J.—History of chronophotography. 1902. R. 1901	1331	05
Mathews, J. A.—Bibliography of metallic carbides. 1898. M. C. 38.	1090	25
Meldola, Raphal.—Photographic image. 1891. R. 1890	816	05
Meyer, Victor.—Chemical problems of today. 1891. R. 1890	815	05
Moissan, H.—Fluorine. 1898. R. 1897	1140	02
Morfit, Campbell.—See Booth, J. C.		
Morley, E. W.—Densities of oxygen and hydrogen. 1895. C. K. 29.	980	1 00
Murray, John.—Floor of the ocean. Evolution of continental and oceanic areas. 1901. R. 1899	1234	02
Niewenglowski, G. H.—Color photography. 1899. R. 1898	1189	02
Ostwald, W.—Chemical energy. 1894. R. 1893	940	05
Pringsheim, E.—See Lummer, O.		

RAMSAY, WILLIAM.—An undiscovered gas. 1898. R. 1897	1139	$0 02
RAMSAY, WILLIAM.—Kinetic theory of gases. 1899. R. 1898	1195	02
RAMSAY, WILLIAM.—Progress in chemistry, nineteenth century. 1901. R. 1900	1272	02
RAMSAY, WILLIAM.—Recently discovered gases and the periodic law. 1899. R. 1898	1194	02
RAYLEIGH (Lord), J. W. S., and RAMSAY, W.—Argon. 1896. C. K. 29.	1033	1 00
ROBERTS-AUSTEN, W. C.—Rarer metals and their alloys. 1898. R. 1896.	1114	02
ROSCOE, H. E.—Bunsen memorial lecture. 1901. R. 1899	1251	02
SCHWEINITZ, E. A. DE.—War with microbes. 1898. R. 1896	1113	02
STOKES, H. N.—Revival of inorganic chemistry. 1899. R. 1898	1196	02
STONEY, G. J.—Range of nature's operations which man is competent to study. 1901. R. 1899	1230	02
TALBOT, H. P., and BROWN, J. W.—Bibliog. Chem. Manganese. 1902. M. C. 41	1313	50
TRAPHAGEN, F. W.—Index to columbium, 1801-'07. 1888. M. C. 34	663	25
TUCKERMAN, A.—Bibliography chemical influence, light. 1891. M. C. 34	785	25
TUCKERMAN, A.—Index to the spectroscope. 1888. M. C. 32	658	1 00
TUCKERMAN, A.—Index to the spectroscope, 1887-1900. 1902. M. C. 41.	1312	1 00
WARNERKE, LEON.—Photographs in natural colors. 1894. R. 1893	935	05
WIENER, O.—Color photography. 1898. R. 1896	1100	02
WILEY, H. W.—Waste and conservation of plant food. 1896. R. 1894.	1002	05
WINKLER, C.—Discovery of new elements. 1898. R. 1897	1138	02

ELECTRICITY AND MAGNETISM.

ANTHONY, W. A.—Transatlantic telephoning. (Pupin, M. I.) 1902 R. 1901	1328	$0 02
BACHE, A. D.—Magnetic survey of Pennsylvania. 1863. C. K. 13	166	50
BOYS, C. V.—Electric-spark photos. of flying bullets. 1894. R. 1893.	936	10
BURDON-SANDERSON, J.—Relation of motion in animals and plants to electrical phenomena. 1901. R. 1899	1235	02
CREAK, E. W.—Magnetic observations. 1896. R. 1895	1042	02
CROOKES, WILLIAM.—Latest achievements of science. 1901. R. 1899.	1226	02
DASTRE, A.—Cathode and Röntgen rays. 1902. R. 1901	1326	02
DUNCAN, L.—Transmission of electrical energy. 1898. R. 1896	1101	02
FOSTER, MICHAEL.—Growth of science in the nineteenth century. 1901. R. 1899	1228	02
GOULD, B. A.—Transatlantic Longitude. 1869. C. K. 16	223	1 00
GRAY, THOMAS.—Development of electrical science. 1899. R. 1898	1190	02
GRAY, THOMAS.—Inventors of telegraph and telephone. 1893. R. 1892.	915	05
HAMMER, W. J.—Telephonograph. (W. Poulsen.) 1902. R. 1901	1329	02
HARKNESS, WILLIAM.—Terrestrial magnetism and compasses. 1872. C. K. 18	239	50
HENRY, JOSEPH.—Directions for lightning rods. 1871. M. C. 10	237	02
HENRY, JOSEPH.—Electro-magnetic telegraph. 1861. M. C. 2	115	05
HERTZ's experiments on electrical undulations. 1893. R. 1892	894	05
KANE, E. K.—Magnetical observations in the Arctic seas. 1859. C. K. 10	97	50
KROPOTKIN, PRINCE.—Unsuspected radiations. 1901. R. 1900	1279	02
MARCONI, G.—Wireless telegraphy. 1902. R. 1901	1327	02
MAREY, J.—Chronophotography. 1902. R. 1901	1331	05
MARTIN, T. C.—Utilization of Niagara. 1898. R. 1896	1102	02
MASCART, E. E. N.—Age of electricity. 1896. R. 1894	998	05
MENDENHALL, T. C.—"The Henry." 1896. R. 1894	997	02
MÜLLER, BARON VON.—See Sonntag, A.		
POINCARÉ, J. H.—Light and electricity. 1896. R. 1894	996	02
POULSEN, WALDEMAR.—See Hammer, W. J.		
PREECE, W. H.—Signalling through space without wires. 1899. R. 1898	1192	02
PUPIN, M. I.—See Anthony, W. A.		

Röntgen, W. C.—The X-rays. 1898. R. 1897	1132	$0 02
Rücker, A. W.—Terrestrial magnetism. 1896. R. 1894	999	05
Schott, C. A.—See Kane, E. K.		
Schuster, A.—Atmospheric electricity. 1896. R. 1895	1041	02
Secchi, A.—Electrical rheometry. 1852. C. K. 3	36	50
Sonntag, August.—Terrestrial magnetism in Mexico. 1860. C. K. 11.	114	25
Thompson, S. P.—Telegraphy across space. 1899. R. 1898	1191	02
Thomson, Elihu.—Electrical advance in last ten years. 1898. R. 1897.	1131	02
Thomson, Elihu.—Electricity during nineteenth century. 1901. R. 1900	1277	02
Thomson, Elihu.—Field of experimental research. 1901. R. 1899	1224	02
Thomson, J. J.—Cathode rays. 1898. R. 1897	1133	02
Thomson, J. J.—Electricity through exhausted tubes. 1893. R. 1892.	895	05
Trouton, F.—See Tunzelmann and Trouton.		
Tunzelmann, G. W. de, and Trouton, F.—Hertz's researches. 1891. R. 1889	774	10
Wood, R. W.—Photography of sound waves. 1901. R. 1900	1278	02

ETHNOLOGY. (*See* Anthropology.)

GEOGRAPHY.

(Andrée, S. A.)—Letters from the Andrée party. 1898. R. 1897	1149	$0 02
Arctowski, Henryk.—Antarctic Voyage of the "Belgica," 1897-1899. 1902. R. 1901	1335	05
Bell, R.—Rising of land around Hudson bay. 1898. R. 1897	1146	02
Blaikie, W. B.—How maps are made. 1894. R. 1893	951	05
Forbes, H. O.—Antarctica. 1896. R. 1894	1007	05
Geikie, James.—Tundras and steppes of prehistoric Europe. 1899. R. 1898	1198	05
Goodrich, J. K.—Progress in geography in 1885. 1886. R. 1885	632	10
Green, F. M.—Progress in geography in 1882. 1883. R. 1882	527	05
Green, F. M.—Progress in geography in 1883. 1884. R. 1883	576	05
Green, F. M.—Progress in geography in 1884. 1885. R. 1884	611	05
Gregory, J. W.—Plan of the earth and its causes. 1899. R. 1898	1200	02
Griffiths, G. S.—Antarctic explorations. 1891. R. 1890	811	05
Grogan, E. S.—Through Africa from Cape to Cairo. 1901. R. 1900.	1283	05
Grosvenor, G. H.—Geographic conquests, nineteenth century. 1901. R. 1900	1282	02
Herdman, W. A.—Oceanography, etc. 1896. R. 1895	1049	02
Hubbard, G. G.—Air and water, temperature and life. 1894. R. 1893.	944	05
Hubbard, G. G.—Evolution of commerce. 1893. R. 1891	882	05
Keltie, J. S.—Function and field of geography. 1898. R. 1897	1148	02
Keltie, J. S.—Stanley and the map of Africa. 1891. R. 1890	810	05
Kirchhoff, Alfred.—Sea in the ife of the nations. 1902. R. 1901.	1336	02
Libbey, William, Jr.—Progress in geography in 1886. 1889. R. 1887.	700	05
Makaroff, Vice-Admiral.—The "Yermak," ice-breaker. 1901. R. 1900.	1284	02
Markham, A. H.—Arctic explorations. 1898. R. 1896	1105	02
Markham, C. R.—Arctic and Antarctic regions. 1896. R. 1894	1008	05
Markham, C. R.—Present standpoint of geography. 1894. R. 1893	950	05
Merriam, C. H.—Bogoslof Volcanoes. 1902. R. 1901	1334	02
Murray, John.—Antarctic exploration. 1894. R. 1893	948	05
Murray, John.—Floor of the ocean. Evolution of continental and oceanic areas. 1901. R. 1899	1234	02
Murray, J., and others.—Advantages of Antarctic exped. 1898. R. 1897.	1150	02
Phillips, P. L.—Virginia cartography. 1897. M. C. 37	1039	25
Playfair, R. L.—The Mediterranean. 1891. R. 1890	809	05
Rees, J. K.—Variation of latitude. 1896. R. 1894	1005	02
Rockhill, W. W.—Diary of journey in Mongolia and Tibet. 1894	975	2 00
Rockhill, W. W.—Explorations in Mongolia and Tibet. 1893. R. 1892.	916	05

RUGE, S.—Cartography of America up to the year 1570. 1896. R. 1894	1006	$0	10
SCAIFE, W. B.—Geographical latitude. 1891. R. 1889	784		05
SEEBOHM, HENRY.—North Polar basin. 1894. R. 1893	949		05
THOMSON, J. P.—Physical Geography of Australia. 1898. R. 1896	1104		02
WHARTON, W. J. L.—Physical condition of the ocean. 1896. R. 1894	1009		02
WINKLER, CAPT.—Marshall Island charts. 1901. R. 1899	1244		02
WOODWARD, R. S.—Geographical tables. 1894. M. C. 35	854	2	00

GEOLOGY AND MINERALOGY.

BELL, R.—Rising of land around Hudson bay. 1898. R. 1897	1146	$0	02
BLYTT, A.—Movements of the earth's crust. 1891. R. 1889	776		10
BOYS, C. V.—Quartz fibers. 1891. R. 1890	813		05
BREZINA, A.—Crystallography and crystallophysics. 1874. R. 1872	386		10
CHREE, C.—Physics, mathematics, and geology. 1893. R. 1891	861		05
CROOKES, W.—Diamonds. 1898. R. 1897	1137		02
DANA, E. S.—Progress in mineralogy in 1882. 1883. R. 1882	531		05
DANA, E. S.—Progress in mineralogy in 1883. 1884. R. 1883	580		05
DANA, E. S.—Progress in mineralogy in 1884. 1885. R. 1884	615		05
DANA, E. S.—Progress in mineralogy in 1885. 1886. R. 1885	639		05
DANA, E. S.—Progress in mineralogy in 1886. 1889. R. 1887	703		05
DANA, E. S.—Progress in mineralogy in 1887-'88. 1890. R. 1888	753		05
DARTON, N. H.—Progress in geology in 1886. 1889. R. 1887	697		10
FOSTER, MICHAEL.—Growth of science in nineteenth century. 1901. R. 1899	1228		02
GEIKIE, ARCHIBALD.—Geological change and time. 1893. R. 1892	890		05
GEIKIE, JAMES.—Glacial geology. 1891. R. 1890	807		05
GEIKIE, JAMES.—Tundras and steppes of prehistoric Europe. 1899. R. 1898	1198		05
GILBERT, G. K.—Continental problems of geology. 1893. R. 1892	892		05
GILBERT, G. K.—Modification of Great Lakes by earth movement. 1899. R. 1898	1199		02
GREGORY, J. W.—Plan of the earth and its causes. 1899. R. 1898	1200		02
HAGUE, ARNOLD.—Yellowstone National Park. Soaping geysers. 1893. R. 1892	891		10
HENNESSY, H.—Physical structure of the earth. 1891. R. 1890	806		05
HOBBS, W. H.—Emigrant diamonds in America. 1902. R. 1901	1333		02
HOLDEN, E. S.—Earthquakes on Pacific coast. 1898. M. C. 37	1087		50
HOLMES, W. H.—Auriferous gravel man in California. 1901. R. 1899	1242		10
HUNT, T. S.—Progress in geology in 1881-'82. 1883. R. 1882	526		10
HUNT, T. S.—Progress in geology in 1883. 1884. R. 1883	575		10
JOLY, J.—Geological age of the earth. 1901. R. 1899	1232		02
JUDD, J. W.—Rejuvenescence of crystals. 1893. R. 1892	898		05
KELVIN, Lord (WM. THOMSON).—Age of earth as abode for life. 1898. R. 1897	1145		02
KING, CLARENCE.—Age of the earth. 1894. R. 1893	947		05
LE CONTE, JOSEPH.—Century of geology. 1901. R. 1900	1274		02
LE CONTE, JOSEPH.—Earth-crust movements. 1898. R. 1896	1103		02
LIVEING, G. D.—Crystallization. 1893. R. 1892	897		05
LYDEKKER, R.—Mammoth ivory. 1901. R. 1899	1237		02
MERRIAM, C. H.—Bogoslof volcanoes. 1902. R. 1901	1334		02
MOISSAN, H.—Fluorine. 1898. R. 1897	1140		02
MURRAY, JOHN.—Floor of the ocean. Evolution of continental and oceanic areas. 1901. R. 1899	1234		02
ORTON, EDWARD.—Origin of natural gas. 1893. R. 1891	862		05
PUMPELLY, R.—Geological researches in China, etc. 1866. C. K. 15.	202	1	00
ROBERTS-AUSTEN, W.C.—Rarer metals and their alloys. 1898. R. 1896.	1114		02
ROCKWOOD, C. G.—Vulcanology and seismology, 1883-'84. 1885. R.1884.	616		10
ROCKWOOD, C. G.—Vulcanology and seismology in 1885. 1886. R. 1885.	634		10
ROCKWOOD, C. G.—Vulcanology and seismology in 1886. 1889. R. 1887.	699		10
SOLLAS, W. J.—Evolutional geology. 1901. R. 1900	1275		02

Sollas, W. J.—Funafuti: the story of a coral atoll. 1899. R. 1898	1201	$0	02
Thomson, W.—See Kelvin, Lord.			
Thoulet, M. J.—Oceanography. 1899. R. 1898	1202		02
Walcott, C. D.—Geologic time. 1894. R. 1893	946		10
Wallace, A. R.—Ice age and its work. 1894. R. 1893	945		05
Ward, L. F.—Petrified forests of Arizona. 1901. R. 1899	1233		05
Weed, W. H.—Geysers. 1893. R. 1891	863		05
White, C. A.—Mutation theory of DeVries. 1902. R. 1901	1356		02

HISTORY.

Barnes, C. L.—Science in early England. 1896. R. 1895	1066	$0	02
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1878. 1879. R. 1878.	408		10
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1879. 1880. R. 1879.	418		10
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1881. 1883. R. 1881.	479		10
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1882. 1883. R. 1882.	520		10
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1883. 1885. R. 1883.	586		10
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1884. 1885. R. 1884.	608		10
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1885. 1886. R. 1885.	629		10
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1886. 1889. R. 1886.	651		10
Baird, S. F.—Report of Sec. Smithsonian Inst. for 1887. 1889. R. 1887.	657		10
Billings, J. S.—Medicine in the nineteenth century. 1901. R. 1900.	1297		02
Boehmer, G. H.—Report on exchanges. 1889. R. 1886	683		05
Boehmer, G. H.—Report on exchanges. 1889. R. 1887	694		05
Bolton, H. C.—Chemical societies of 19th century. 1902. M. C. 41.	1314		15
Carhart, H. S.—Imperial Physico-Technical Inst., Berlin. 1901. R. 1900	1281		02
Century (19th). Astronomy. Lockyer	1262		02
Biology. Hertwig	1285		02
Chemical Societies. Bolton	1314		15
Chemistry. Ramsay	1272		02
Electricity. Thomson	1277		02
Geography. Grosvenor	1282		02
Geology. LeConte	1274		02
Great men in Science. Peirce	1302		02
Medicine. Billings	1297		02
Physics. Mendenhall	1276		02
Psychical research. Lang	1300		02
Science. Foster	1228		02
Science. Huxley	695		05
Scientific thought. Rice	1240		02
Steam-engine. Thurston	1250		02
Steam-navigation. White	1249		02
Crookes, William.—Latest achievements of science. 1901. R. 1899.	1226		02
D'Herisson, Count.—Loot of Imperial Palace, Pekin in 1860. 1901. R. 1900	1296		02
Foster, Michael.—Growth of science in the 19th cent. 1901. R. 1899.	1228		02
Glazebrook, R. T.—National Physical Laboratory of Great Britain. 1902. R. 1901	1332		02
Goode, G. B.—Smithsonian exhibit at Atlanta exposition. 1895	988		05
Goode, G. B.—Smithsonian exhibit at Atlanta exp't'n. 1898. R. 1896.	1119		02
Goode, G. B.—Smithsonian Inst., history of first half century of. 1897.	1086	12	50
Goode, G. B.—Smithsonian Institution, origin, history, etc. 1895	987		05
Grosvenor, G. H.—Geographic conquests, 19th century. 1901. R. 1900	1282		02
Guttstadt, A.—National scientific institutions at Berlin. 1891. R. 1889	773		10
Henry, Joseph.—Reports of Sec. Smithsonian Inst., 1865-1877	343		25
Hertwig, Oscar.—Growth of biology, 19th century. 1901. R. 1900	1285		02
Huxley, T. H.—Advance of science in last half century. 1889. R. 1887.	695		05
International Exchange Service of Smithsonian Institution. 1893. M. C. 44	1372		02

Kidder, J. H.—Report on exchanges. 1889. R. 1888	688	$0 05
Lang, Andrew.—Psychical research of the century. 1901. R. 1900.	1300	02
Langley, S. P.—Report of Sec. Smithsonian Inst., 1888. 1888. R. 1888.	668	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1889. 1889. R. 1889.	722	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1890. 1890. R. 1890.	771	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1891. 1891. R. 1891.	836	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1892. 1892. R. 1892.	845	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1893. 1894. R. 1893.	918	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1894. 1895. R. 1894.	973	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1895. 1896. R. 1895.	990	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1896. 1897. R. 1896.	1074	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1897. 1898. R. 1897.	1088	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1898. 1898. R. 1898.	1169	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1899. 1899. R. 1899.	1178	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1900. 1900. R. 1900.	1255	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1901. 1901. R. 1901.	1311	10
Langley, S. P.—Report of Sec. Smithsonian Inst., 1902. 1902. R. 1902.	1369	10
Le Conte, Joseph.—Century of geology. 1901. R. 1900	1274	02
Lockyer, Norman.—Progress in astronomy, 19th century. 1901. R. 1900	1262	02
Loewy, Maurice.—The Institute of France in 1894. 1896. R. 1894	1028	02
Mendenhall, T. C.—Progress in physics, 19th century. 1901. R. 1900	1276	02
Müller, F. Max.—Oriental scholarship. 1894. R. 1893	963	05
Peirce, C. S.—Century's great men in science. 1901. R. 1900	1302	02
Proceedings of Regents, report of Exec. Com., acts of Congress:		
1887-88. 1890. R. 1888	746	05
1888-89. 1891. R. 1889	772	05
1889-90. 1891. R. 1890	802	05
1890-91. 1892. R. 1891	858	05
1891-92. 1893. R. 1892	887	05
1892-93. 1894. R. 1893	926	05
1893-94. 1896. R. 1894	993	05
1894-95. 1896. R. 1895	1040	05
1895-96. 1898. R. 1896	1094	05
1896-97. 1898. R. 1897	1127	05
1897-98. 1899. R. 1898	1181	05
1898-99. 1901. R. 1899	1221	05
1899-1900. 1901. R. 1900	1261	05
1900-1901. 1902. R. 1901	1315	05
Ramsay, William.—Progress in chemistry, 19th century. 1901. R. 1900	1272	02
Rhees, W. J.—Smithsonian Institution, Journals of Regents, reports of committees, statistics, etc., 1846-'76. 1879. M. C. 18	329	5 00
Rhees, W. J.—Smithsonian Institution, origin and history, 1835-1876. 1879. M. C. 17	328	5 00
Rhees, W. J.—Smithsonian Institution, origin and history, vol. I, 1835-1887. 1901. M. C. 42	1305	*1 45
Rhees, W. J.—Smithsonian Institution, origin and history, vol. II. 1887-1899. 1901. M. C. 43	1306	
Rice, W. N.—Scientific thought in the 19th century. 1901. R. 1899.	1240	02
Simon, J.—Centennial of Institute of France. 1896. R. 1895	1065	02
Smithsonian Institution. 1902. R. 1901	1316	02
Thomson, Elihu.—Electrical advance in ten years. 1898. R. 1897.	1131	02
Thurston, R. H.—Century's progress of steam-engine. 1901. R. 1899.	1250	02
Virchow, Rudolph.—The Berlin University. 1896. R. 1894	1027	02
White, W. H.—Progress in steam navigation. 1901. R. 1899	1249	02

MAGNETISM. (*See* Electricity.)

---

*For sale by Superintendent of Documents, Government Printing Office, Washington, D. C.

MATHEMATICS.

Alvord, Benjamin.—Tangencies of circles and spheres. 1856. C. K. 8.	80	$0	25
Barnard, J. G.—Internal structure of the earth. 1877. C. K. 23	310		25
Ferrel, William.—Converging series. 1871. C. K. 18	233		05
Koenigsberger, L.—Helmholtz on principles of mathematics and mechanics. 1898. R. 1896	1096		05
Schubert, Hermann.—Squaring of the circle. 1891. R. 1890	803		05
Stoney, G. J.—Range of nature's operations which man is competent to study. 1901. R. 1899	1230		02

MEDICINE AND SURGERY. (*See* Anatomy.)

METEOROLOGY.

Abbe, Cleveland.—Dynamic meteorology in 1887-'88. 1890. R. 1888.	751	$0	10
Abbe, Cleveland.—Mechanics of earth's atmosphere. 1893. M. C. 34.	843		50
Abbe, Cleveland.—Progress in meteorology. 1879-'81. 1883. R. 1881.	484		10
Abbe, Cleveland.—Progress in meteorology in 1882. 1883. R. 1882.	528		10
Abbe, Cleveland.—Progress in meteorology in 1883. 1884. R. 1883.	577		10
Abbe, Cleveland.—Progress in meteorology in 1884. 1885. R. 1884.	612		10
Abbe, Cleveland.—Short memoirs on meteorological subjects by Julius Hann, L. Sohncke, Theodore Reye, William Ferrel, A. Colding, and M. Peslin. 1878. R. 1877	398		25
Aitken, J.—Phenomena of cloudy condensation. 1894. R. 1893	939		10
Bache, A. D.—Magnetic and met'l obs., Phila., pt. I. 1859. C. K. 11.	113		15
Part II. 1862. C. K. 13	121		15
Part III. 1862. C. K. 13	132		15
Parts IV, V, and VI. 1862. C. K. 13	162		25
Parts VII, VIII, and IX. 1864. C. K. 14	175		25
Parts X, XI, and XII. 1865. C. K. 14	186		25
Bacon, J. M.—Scientific ballooning. 1899. R. 1898	1197		02
Bergey, D. H.—Organic matter in the air. 1896. M. C. 39	1037		25
Caswell, A.—Met'l obs., Providence, R. I., 1831-'60. 1860. C. K. 12	103		50
Caswell, A.—Met'l obs., Providence, R. I., 1831-'76. 1882. C. K. 24	443		25
Chappelsmith, J.—Tornado near New Harmony, Ind. 1855. C. K. 7.	59		20
Cleaveland, P.—Met'l obs., Brunswick, Me., 1807-1859. 1867. C. K. 16.	204		50
Coffin, J. H.—Meteoric fire ball, July 20, 1860. 1869. C. K. 16	221		25
Coffin, J. H., and Hough, F. B.—Meteorological obs., 1854-'59. 1864.	182	2	00
Cohen, J. B.—Air of towns. 1896. M. C. 39	1073		25
(The same.) 1896. R. 1895	1046		10
Colding, A.—See Abbe, Cleveland.			
Cornu, A.—Phenomena of the upper atmosphere. 1898. R. 1896	1097		02
Curtis, G. E.—Progress in meteorology in 1889. 1891. R. 1889	775		25
Duclaux, E.—Atmospheric actinometry. 1896. C. K. 29	1034		75
Fassig, O. L.—Bibliography of meteorology for 1884. 1885. R. 1884	612		10
Ferrel, William.—See Abbe, Cleveland.			
Graffigny, H. de.—Exploration of the upper atmosphere. 1898. R. 1897	1142		02
Hann, Julius.—See Abbe, Cleveland.			
Harrington, M. W.—Weather-making. 1896. R. 1894	1004		05
Henry, Joseph.—Thunder-storms. 1871. M. C. 10	235		02
Hildreth, S. P.—Meteorological obs., Marietta, Ohio, 1826-1859. By Joseph Wood, 1817-1823. 1867. C. K. 16	120		25
Holden, E. S.—Mountain observatories. 1896. M. C. 37	1035		25
Hough, F. B.—See Coffin, J. H., and Hough, F. B.			
Inwards, R.—Meteorological observatories. 1898. R. 1896	1099		02
Janssen, J.—Observations, Mont Blanc. 1896. R. 1894	1003		02

Lockyer, Norman, and Lockyer, W. J. S.—Temperature and rainfall in Indian ocean. 1901. R. 1900.	1265	$0 02
Loomis, Elias.—Storms in Europe and America. 1860. C. K. 11.	127	25
Loud, F. H.—Barometric observations of E. S. Snell. 1881. R. 1880.	435	05
McAdie, Alexander.—Aero-physical observatory. 1897. M. C. 39.	1077	10
McClintock, F. L.—Arctic met'l obs., 1857-1859. 1862. C. K. 13.	146	50
McParlin, T. A.—History and climate of New Mexico. 1877. R. 1877.	396	05
Mont Blanc Observatory. 1894. R. 1893.	943	05
Meteorological Tables, Smithsonian, 2d revised ed. 1897. M. C. 35.	1032	2 00
Meteorological Work of the Smithsonian Inst. 1893. R. 1892.	888	02
Peslin, M.—See Abbe, Cleveland.		
Rayleigh (Lord), J. W. S., and Ramsay, W.—Argon. 1896. C. K. 29.	1033	1 00
Reye, Theodore.—See Abbe, Cleveland.		
Rotch, A. Lawrence.—Exploration of atmosphere at sea by kites. 1902. R. 1901.	1323	02
Rotch, A. L.—Explorations of the free air by kites. 1898. R. 1897.	1143	02
Rotch, A. L.—Highest meteorological station. 1894. R. 1893.	942	05
Rotch, A. L.—Kites for meteorological observations. 1901. R. 1900.	1271	02
Russell, F. A. R.—Atmosphere, life and health. 1896. M. C. 39.	1072	25
(The same.) 1896. R. 1895.	1045	10
Schott, C. A.—Atmospheric temperature in the U. S. 1876. C. K. 21.	277	1 00
Schott, C. A.—Rain and snow in the United States. 1872. C. K. 18.	222	1 25
Schott, C. A.—Rain and snow in the United States. 1881. C. K. 24.	353	1 50
Schott, C. A.—Rain charts of the United States. 1870. C. K. 18.	374	05
Schott, C. A.—Temperature chart of the United States. 1873.	381	02
Schott, C. A.—Temperature charts of the United States. 1874.	387	05
Schott, C. A.—See Cleaveland, P.; Hildreth, S. P.; McClintock, F. L.		
Schuster, A.—Atmospheric electricity. 1896. R. 1895.	1041	02
Siemens, W. von.—Circulation of the atmosphere. 1893. R. 1891.	864	02
Smith, N. D.—Met'l obs., Washington, Ark., 1840-1859. 1860. C. K. 12.	131	25
Sohncke, L.—See Abbe, Cleveland.		
Varigny, H. de.—Air and life. 1896. M. C. 39.	1071	20
(The same.) 1896. R. 1895.	1044	05
Varigny, H. de.—Temperature and life. 1891. R. 1890.	818	05
Varigny, H. de.—The air and life. 1894. R. 1893.	957	05
Wood, Joseph.—See Hildreth, S. P.		

MINERALOGY. (*See* Geology.)

PALÆONTOLOGY.

Brooks, W. K.—Origin of fossils; and bottom of ocean. 1896. R. 1894.	1010	$0 05
Conrad, T. A.—Check-list of fossils. 1866. M. C. 7.	200	05
Dubois, Eugene.—Pithecanthropus erectus, a form from ancestral stock of mankind. 1899. R. 1898.	1204	05
Leidy, Joseph.—Extinct sloth tribe of North America. 1855. C. K. 7.	72	1 00
Lucas, F. A.—Dinosaurs or terrible lizards. 1902. R. 1901.	1357	05
Lucas, F. A.—Restoration of extinct animals. 1901. R. 1900.	1286	10
Lucas, F. A.—Truth about the mammoth. 1901. R. 1899.	1236	02
Lydekker, R.—Mammoth ivory. 1901. R. 1899.	1237	02
Marcou, J. B.—Progress in N. A. palæontology in 1884. 1885. R. 1884.	610	10
Meek, F. B.—Check-list of fossils. 1864. M. C. 7.	177	10
Sherborn, C. D.—Index to foraminifera, pt. 1, A to Non. 1893 M. C. 37.	856	1 00
Sherborn, C. D.—Index to foraminifera, pt. 2, Non to Z. 1896. M. C. 37.	1031	1 00
Ward, L. F.—Petrified forests of Arizona. 1901. R. 1899.	1233	05
Williams, H. S.—Progress in palæontology in 1887-'88. 1890. R. 1888.	749	10

PHILOLOGY.

Blumentritt, Ferdinand.—List of native tribes and languages of the Philippines. 1901. R. 1899	1246	$0	02
Bowen, T. J.—Yoruba grammar and dictionary. 1858. C. K. 10	98	2	00
Dorsey, J. O.—Phonology of Siouan languages. 1885. R. 1883	605		05
Gibbs, George.—Chinook jargon. 1863. M. C. 7	161		10
Müller, F. Max.—Oriental scholarship. 1894. R. 1893	963		05
Roehrig, F. L. O.—Dakota language. 1872. R. 1871	378		05

PHYSICS.

Agassiz, Alexander.—Gulf stream. 1893. R. 1891	865	$0	05
Aitken, J.—Phenomena of cloudy condensation. 1894. R. 1893	939		10
Anthony, W. A.—Transatlantic telephoning (M. I. Pupin). 1902 R. 1901	1328		02
Auerbach, F.—Absolute measurement of hardness. 1893. R. 1891	866		10
Bacon, J. M.—Scientific ballooning. 1899. R. 1898	1197		02
Bailey, J. W.—Microscopical examination of soundings. 1851. C. K. 2.	20		25
Ball, Robert.—Atoms and sunbeams. 1894. R. 1893	932		05
Ball, Robert.—Wanderings of the North Pole. 1894. R. 1893	927		05
Barker, G. F.—Progress in physics in 1881. 1883. R. 1881	485		10
Barker, G. F.—Progress in physics in 1882. 1883. R. 1882	529		10
Barker, G. F.—Progress in physics in 1883. 1884. R. 1883	578		10
Barker, G. F.—Progress in physics in 1884. 1885. R. 1884	613		10
Barker, G. F.—Progress in physics in 1885. 1886. R. 1885	638		10
Barker, G. F.—Progress in physics in 1886. 1889. R. 1887	701		10
Barus, Carl.—Ionized air. 1901. S. C. 29	1309		25
Barus, Carl.—Structure of the Nucleus. 1903. C. K. 29	1373		25
Bolton, H. C.—Study of radio-active substances. 1901. R. 1899	1227		02
Boys, C. V.—Electric-spark photos of flying bullets. 1894. R. 1893	936		10
Carhart, H. S.—Physico-Technical Inst., Berlin. 1901. R. 1900	1281		02
Chamberlain, T. C.—On Lord Kelvin's address on Age of the earth as abode fitted for life. 1901. R. 1899	1231		02
Color-photography. 1901. R. 1900	1290		02
Cornu, A.—Wave theory of light. 1901. R. 1899	1222		02
Curtis, T. E. [Smith, J. W.]—Zeppelin air-ship. 1901. R. 1900	1270		02
Dastre, A.—New radiations—Cathode and Röntgen Rays. 1902. R. 1901	1326		02
Davis, C. H.—Law of deposit of the flood tide. 1852. C. K. 3	33		25
Dewar, James.—Liquefaction of hydrogen and helium. 1899. R. 1898.	1193		02
Dewar, James.—Liquid hydrogen. 1901. R. 1899	1225		02
Dewar, James.—Liquid hydrogen. 1901. R. 1900	1273		02
Dewar, James.—Magnetic properties of liquid oxygen. 1894. R. 1893.	937		05
Dewar, James.—Researches on liquid air. 1898. R. 1896	1098		02
Duclaux, E.—Atmospheric actinometry. 1896. C. K. 29	1034		75
Elsdale, H.—Scientific problems of the future. 1896. R. 1894	1026		02
Ewing, J. A.—Molecular process in magnetic induction. 1893. R. 1892.	896		05
Glazebrook, R. T.—National Physical Laboratory of Great Britain. 1902. R. 1901	1332		02
Gore, J. H.—See Witskowski, W.			
Gray, Thomas.—Smithsonian Physical tables. 1903. M. C. 35	1038	2	00
Guillaume, C. E.—Extreme infra-red radiations. 1899. R. 1898	1185		02
Hallock, William.—Flow of solids. 1893. R. 1891	867		02
Hammer, W. J.—Telephonograph (W. Poulsen). 1902. R. 1901	1329		02
Harkness, W.—Art of measuring and weighing. 1890. R. 1888	758		05
Hele-Shaw, H. S.—Motion of a perfect liquid. 1901. R. 1899	1223		02
Henry, Joseph.—Researches in sound, 1865-'77. 1879. R. 1878	406		25
Herdman, W. A.—Oceanography, bionomics, aquiculture. 1896. R. 1895	1049		02
Hilgard, J. E.—Tides and tidal action in harbors. 1875. R. 1874	390		05
Hough, Walter.—Development of illumination. 1902. R. 1901	1344		02

Ives, F. E.—Photography in colors of nature. 1894. R. 1893	934	$0 05
Janssen, J.—Photographic photometry. 1896. R. 1894	1000	02
Janssen, J.—Progress of aeronautics. 1901. R. 1900	1267	02
Kane, E. K.—Tidal observations in the Arctic seas. 1860. C. K. 13.	130	25
Kelvin, Lord (William Thomson).—Ether and gravitational matter through infinite space. 1902. R. 1901	1321	02
Koenig, Rudolph.—See Thompson, S. P.		
Koenigsberger, L.—Helmholtz, principles of mathematics and mechanics. 1898. R. 1896	1096	05
Kropotkin, Prince.—Unsuspected radiations. 1901. R. 1900	1279	02
Langley, S. P.—Aerodrome. 1901. R. 1900	1269	05
Langley, S. P.—Experiments in aerodynamics. 1891. C. K. 27	801	1 00
Langley, S. P.—Experiments in mechanical flight. 1898. R. 1897	1134	02
Langley, S. P.—Greatest flying creature. 1902. R. 1901	1358	02
Langley, S. P.—Internal work of the wind. 1893. C. K. 27	884	50
Langley, S. P.—New spectrum. 1901. R. 1900	1301	02
Langley, S. P., and Very, F.—Cheapest form of light. M. C. 41. 1901.	1258	10
Lechalas, George.—Perception of light and color. 1899. R. 1898	1187	02
Le Sage, G. L.—Theory of gravitation. 1899. R. 1898	1184	02
Lewes, V. B.—Incandescent mantels. 1901. R. 1900	1280	02
Lilienthal, Otto.—Flying and soaring. 1894. R. 1893	938	05
Loewy, Maurice, and Puiseux, P.—Lunar photography. 1899. R. 1898.	1182	05
Lovering, J.—Michelson's recent researches on light. 1891. R. 1889.	780	05
Lummer, O.—Light, and its artificial production. 1898. R. 1897	1141	02
Lyle, Jr., E. P.—Santos-Dumont circling Eiffel Tower. 1902. R. 1901	1352	02
McAdie, A.—Aero-physical observatory. 1897. M. C. 39	1077	10
Marconi, G.—Wireless telegraphy. 1902. R. 1901	1327	02
Martin, T. C.—Utilization of Niagara. 1898. R. 1896	1102	02
Masson, Orme.—Gaseous theory of solution. 1893. R. 1892	899	05
Meech, L. W.—Heat and light of the sun. 1856. C. K. 9	83	25
Meldola, Raphael.—Photographic image. 1891. R. 1890	816	05
Mendenhall, T. C.—Fundamental units of measure. 1894. R. 1893	933	02
Mendenhall, T. C.—Progress in physics, nineteenth century. 1901. R. 1900	1276	02
Michelson, A. A.—Spectroscopic measurements. 1893. C. K. 29	842	1 00
Michelson, A. A.—See Lovering, J.		
Niewenglowski, G. H.—Color photography. 1899. R. 1898	1189	02
Physical Papers. 1891. R. 1889	779	10
Anderson, William.—Molecular structure of matter.		
Lodge, O. J.—Modern theory of light.		
Radau, R.—Photography in astronomy.		
Thomson, Sir William.—Boscovich's theory.		
Physical Tables. 1903. M. C. 35	1038	2 00
Poulsen, Waldemar.—See Hammer, W. J.		
Poynting, J. H.—Recent studies in gravitation. 1902. R. 1901	1320	02
Preece, W. H.—Signaling through space without wires. 1899. R. 1898.	1192	02
Puiseux, P.—See Loewy and Puiseux.		
Pupin, M. I.—See Anthony, W. A.		
Ramsay, William.—Liquids and gases. Solutions. 1893. R. 1892	900	05
Ramsay, William.—See Rayleigh and Ramsay.		
Rayleigh, (Lord) J. W. S.—Flight. 1901. R. 1900	1268	02
Rayleigh, (Lord) J. W. S., and Ramsay, W.—Argon. 1896. C. K. 29.	1033	1 00
Röntgen, W. C.—The X-rays. 1898. R. 1897	1132	02
Rücker, A. W.—Model of Nature. 1902. R. 1901	1318	02
Santos-Dumont, Alberto.—See Lyle, Jr., E. P.		
Schott, C. A.—See Kane, E. K.		
Smith, J. W.—See Curtis, T. E.		
Stevens, W. L. C.—Optics. 1896. R. 1895	1043	02
Stokes, G. G.—Luminiferous æther. 1894. R. 1893	931	05
Stoney, G. J.—Range of nature's operations which man is competent to study. 1901. R. 1899	1230	02
Taylor, W. B.—Kinetic theories of gravitation. 1877. R. 1876	395	10
Taylor, W. B.—Refraction of sound. 1885. R. 1875	595	05

Thompson, S. P.—Koenig's musical harmony. 1891. R. 1890........ 814 $0
Thompson, S. P.—Telegraphy across space. 1899. R. 1898.......... 1191
Thomson, Elihu.—Field of experimental research. 1901. R. 1899.. 1224
Thomson, J. J.—Bodies smaller than atoms. 1902. R. 1901........ 1322
Thomson, J. J.—Cathode rays. 1898. R. 1897...................... 1133
Thomson, J. P.—Physical geography of Australia. 1898. R. 1896... 1104
Thurston, R. H.—Utilizing the sun's energy. 1902. R. 1901....... 1325
Very, F.—See Langley, S. P.
Warnerke, L.—Photographs in natural colors. 1894. R. 1893...... 935
Watkins, J. E.—Ramsden dividing engine. 1891. R. 1890......... 832
Welch, W. A.—Modern scientific laboratories. 1896. R. 1895....... 1052
Whittlesey, C.—Fluctuations of levels in N. A. lakes. 1860. C. K. 12.. 119
Wiener, O.—Color photography. 1898. R. 1896................... 1100
Wilsing, J.—Mean density of the earth. 1890. R. 1888............ 759
Witskowski, W., and Gore, J. H.—Geodetic operations in Russia. 1891. R. 1890.. 812
Wood, R. W.—Photography of sound waves with cinematograph. 1901. R. 1900.. 1278
Woodward, R. S.—Mathematical theories of the earth. 1891. R. 1890. 805
Worthington, A. M.—Splash of a drop. 1896. R. 1894............. 1001
Zeppelin, Count von, Dirigible air-ship. 1901. R. 1899............. 1248
Zeppelin, Count von.—See Curtis, T. E.

PHYSIOLOGY. (*See* ANATOMY.)

PSYCHOLOGY.

Binet, Alfred.—Psychology of prestidigitation. 1896. R. 1894...... 1021 $0
Lang, Andrew.—Psychical research of the century. 1901. R. 1900.. 1300
Langley, S. P.—Fire walk ceremony in Tahiti. 1902. R. 1901.... 1348

SANITARY SCIENCE. (*See* ANATOMY.)

ZOÖLOGY.

GENERAL.

Aflalo, F. G.—Some private zoos. 1902. R. 1901.................. 1363 $0
Dall, W. H.—Preservation of marine animals of N. W. Coast. 1902. R. 1901 1362
Edinger, L.—Have fishes memory? 1901. R. 1899.................. 1239
Gill, Theodore.—Progress in zoölogy in 1881. 1883. R. 1881...... 487
Gill, Theodore.—Progress in zoölogy in 1882. 1883. R. 1882...... 533
Gill, Theodore.—Progress in zoölogy in 1883. 1885. R. 1883...... 582
Gill, Theodore.—Progress in zoölogy in 1884. 1885. R. 1884...... 617
Gill, Theodore.—Progress in zoölogy in 1885. 1886. R. 1885...... 643
Gill, Theodore.—Progress in zoölogy in 1886. 1889. R. 1887...... 704
Gill, Theodore.—Questions of nomenclature. 1898. R. 1896....... 1112
Graff, L.—Zoölogy since Darwin. 1896. R. 1895.................. 1051
Hamy, E. T.—Royal menagerie of France. 1898. R. 1897.......... 1155
Miall, L. C.—Life history studies of animals. 1898. R. 1897....... 1154

Murray, J.—Marine organisms. 1898. R. 1896	1110	$0 02
Rathbun, R.—Catalogue of collections from sea and fresh waters with summary of American explorations relative to aquatic life, etc. 1883	557	25
Rathbun, R.—Catalogue of crustaceans, etc. 1883	552	05
Reynaud, G.—Laws of orientation among animals. 1899. R. 1898	1206	02
Seton, E. T.—National Zoo at Washington. 1902. R. 1901	1364	10
Sollas, W. J.—Funafuti: the story of a coral atoll. 1899. R. 1898.	1201	02
Spears, J. R.—Corbin game park in New Hampshire. 1893. R. 1891.	874	05
Stimpson, W.—Marine invertebrata of Grand Manan. 1853. C. K. 6.	50	1 00
Thayer, A. H.—Protective coloration of animals. 1898. R. 1897	1153	02

BIRDS.

Baird, S. F.—Circular relative to birds. 1863. M. C. 8	168	$0 02
Dugmore, A. R.—Nature pictures. 1901. R. 1900	1288	10
Elliot, D. G.—List of species of humming birds. 1879. M. C. 16	334	05
Langley, S. P., and Lucas, F. A.—Greatest flying creature. 1902. R. 1901	1358	02
Lilienthal, Otto.—Flying and soaring. 1894. R. 1893	938	05
Lucas, F. A.—See Langley, S. P.		
Mouillard, L. P.—Empire of the air. 1893. R. 1892	903	10
Raspail, Xavièr.—Sense of smell in birds. 1901. R. 1899	1238	02
Rayleigh, Lord.—Flight. 1901. R. 1900	1268	02
Ridgway, R.—Catalogue of aquatic and fish-eating birds. 1883	553	05
Ridgway, R.—Catalogue of Old World birds. 1882. M. C. 22	462	02

FISHES.

Agassiz, L.; Baird, S. F., and Jordan, D. S.—Six species of N. A. fishes. 1889	672	$0 75
Baird, S. F.—Circular in reference to shipping fresh fish. 1881	384	02
Baird, S. F.—See Agassiz, Baird, and Jordan.		
Bean, T. H.—Catalogue of fishes of U. S. 1883	556	10
Bean, T. H.—Directions for collecting and preserving fish. 1881	464	02
Edinger, L.—Have fishes memory? 1901. R. 1899	1239	02
Gill, Theodore.—Arrangement of the families of fishes. 1872. M. C. 11	247	25
Gill, Theodore.—Catalogue of the fishes of east coast. 1875. M. C. 14.	283	10
Jordan, D. S.—See Agassiz, Baird, and Jordan.		

INSECTS.

De Saussure, Henry.—Synopsis of wasps. 1875. M. C. 14	254	$1 00
Haviland, G. D.—Termites, or white ants. 1902. R. 1901	1360	05
Heim, F. L.—Relations between plants and ants. 1898. R. 1896	1111	05
Horn, G. H.—See Le Conte, J. L., and Horn, G. H.		
Howard, L. O.—Economic status of insects. 1899. R. 1898	1209	02
Le Conte, J. L.—Coleoptera of Kansas and eastern New Mexico. 1859. C. K. 11	126	25
Le Conte, J. L.—List of the coleoptera of N. A., pt. I. 1866. M. C. 6.	140	25
Le Conte, J. L.—New species of N. A. coleoptera, pt. I. 1866. M. C. 6.	167	50
Le Conte, J. L., and Horn, G. H.—Classification of coleoptera, N. A. 1883. M. C. 26	507	3 00
Loew, H., and Osten-Sacken, C. R.—Monographs, diptera, pt. I. 1862. M. C. 6	141	50
Melsheimer, F. E.—Catalogue of coleoptera of the U. S. 1853	62	50
Morris, J. G.—Synopsis of lepidoptera of N. A., pt. I. 1862. M. C. 4.	133	50
Miall, L. C.—Life of aquatic insects. 1893. R. 1891	872	02
Osten-Sacken, C. R.—Bugonia of the ancients. 1894. R. 1893	954	05

Osten-Sacken, C. R.—Catalogue of diptera of N. A. 1878. M. C. 16	270	$0 50
Osten-Sacken, C. R.—See Loew, H., and Osten-Sacken, C. R.		
Scudder, S. H.—Catalogue of orthoptera of N. A. 1868. M. C. 8	189	50
Sternberg, G. M.—Transmission of yellow fever by mosquitoes. 1901. R. 1900	1299	02

MAMMALS.

Dugmore, A. Radclyffe.—The outlaw. Study of a beaver. 1901. R. 1900	1289	$0 05
Gill, Theodore.—Arrangement of families of mammals. 1872. M. C. 11	230	25
Johnston, H. H.—Okapi. 1902. R. 1901	1359	05
Lucas, F. A.—Restoration of extinct animals. 1901. R. 1900	1286	10
Lucas, F. A.—Truth about the mammoth. 1901. R. 1899	1236	02
Lydekker, R.—Mammoth ivory. 1901. R. 1899	1237	02
True, F. W.—Catalogue of aquatic mammals. 1883	562	10
Varigny, Henry de.—Breeding of the Arctic fox. 1901. R. 1900	1291	02
Wanderings of the water buffalo. 1902. R. 1901	1361	02

MOLLUSKS.

Binney, W. G.—Bibliography N. A. conchology, pt. I. 1863. M. C. 5	142	$2 00
Binney, W. G.—Bibliography N. A. conchology, pt. II. 1864. M. C. 9	174	2 00
Hyatt, A.—Genesis of the Arietidæ. 1889. C. K. 26	673	2 50
Stearns, R. E. C.—Commensals, etc., in pearl oysters. 1889. R. 1886	685	05
Stimpson, William.—Hydrobiinæ and allied forms. 1865. M. C. 7	201	25
Tryon, G. W.—Land and fresh-water shells, Strepomatidæ. 1873. M. C. 16	253	2 00
Winslow, F.—Catalogue of economic mollusca. 1883	554	10

RADIATES.

Agassiz, L., and Fewkes, J. W.—Anatomy of Astrangia danæ. 1889.	671	$0 75
Clark, H. J.—Lucernariæ and their allies. 1878. C. K. 23	242	2 00
Fewkes, J. W.—See Agassiz and Fewkes.		

REPTILES.

Baird, S. F.—Circular relating to reptiles. 1878. M. C. 15	320	$0 02
Douglass, H. M.—See Weismann, August.		
Lucas, F. A.—Dinosaurs or terrible lizards. 1902. R. 1901	1357	05
Weismann, August.—Change of the Mexican axolotl. 1878. R. 1877.	401	05
Yarrow, H. C.—Check-list of N. A. reptilia and batrachia. 1883	517	02

MISCELLANEOUS.

Act to establish the Smithsonian Inst., amended Mar. 12, 1894. 1895.	923	$0	02
Adams, H. B.—The state and higher education. 1891. R. 1889	783		05
Armstrong, H. E.—Place of research in education. 1896. R. 1895	1067		02
Binet, Alfred.—Psychology of prestidigitation. 1896. R. 1894	1021		10
Brown, Addison.—Endowment for scientific research. 1893. R. 1892.	914		05
Fleming, S.—Time reckoning for the twentieth century. 1889. R. 1886	686		05
Foster, Michael.—Growth of science in the nineteenth century. 1901. R. 1899	1228		02
Fournier, H., and others.—Automobile races. 1902. R. 1901	1353		02
Fox, Francis.—Great Alpine tunnels. 1902. R. 1901	1355		02
Goode, G. B.—Smithsonian Inst. History of first half century of. 1897	1086	12	50
Gowland, W.—Art of casting bronze in Japan. 1896. R. 1894	1024		10
Green, B. R.—The Library of Congress. 1898. R. 1897	1163		05
Harkness, William.—Art of weighing and measuring. 1890. R. 1888.	758		05
Henry, Joseph.—Scientific writings, two vols. 1886. M. C. 30	550	3	00
International Exchange Service of Smithsonian Institution. 1903. M. C. 44	1372		02
Langley, S. P.—Laws of nature. 1902. R. 1901	1349		02
List of foreign correspondents, Smithsonian Institution. 1882	469		10
List of foreign correspondents, Smithsonian Institution. 1897	1081		50
List of institutions in U. S. receiving Smithsonian publications. 1886	512		02
Lists of Smithsonian publications. See Bibliography.			
Magowan, D. J.—Time-keeping among the Chinese. 1893. R. 1891.	879		02
Mason, O. T.—Birth of invention. 1893. R. 1892	921		05
Melville, G. W.—Submarine boats. 1902. R. 1901	1365		05
Mendenhall, T. C.—Fundamental units of measure. 1894. R. 1893.	933		02
Müller, F. Max.—Oriental scholarship. 1894. R. 1893	963		05
Newell, F. H.—Irrigation. 1902. R. 1901	1338		05
Paine, A. B.—Children's room in the Smithsonian Institution. 1902. R. 1901	1350		10
Peabody, A. P.—Scientific education of mechanics, etc. 1873. R. 1872	380		02
Philosophical Society of Washington City.—Bulletin, Vols. I, II, III. 1881. M. C. 20	497	1	00
Vol. IV, 1880-'81. 1881. M. C. 25	498		25
Vol. V, 1881-'82. 1883. M. C. 25	503		25
Vol. VI, 1883. 1884. M. C. 33	543		25
Vol. VII, 1884. 1885. M. C. 33	592		25
Vol. VIII, 1885. 1886. M. C. 33	636		50
Vols. IX-X, 1886-'87, and index for Vols. I-X. 1888. M. C. 33	661		50
Reymond, E. du Bois.—Relation of natural science to art. 1893. R. 1891	883		05
Rhees, W. J.—Smithsonian Institution, Journals of Regents, reports of committees, statistics, etc., 1846 to 1876. 1879. M. C. 18	329	5	00
Rhees, W. J.—Smithsonian Institution, origin and history, 1835-1876. 1879. M. C. 17	328	5	00
Rhees, W. J.—Smithsonian Institution, origin and history, vol. I, 1835-1887. 1901. M. C. 42	1305	*1	45
Rhees, W. J.—Smithsonian Institution, origin and history, vol. II, 1887-1899. 1901. M. C. 43	1306		
Rice, W. N.—Scientific thought in the nineteenth century. 1901. R. 1899	1240		02

---

* For sale by Superintendent of Documents, Government Printing Office, Washington, D. C.

Seely, F. A.—Time-keeping in Greece and Rome. 1891. R. 1889	777	$0 05
Seton, E. T.—National Zoo at Washington. 1902. R. 1901	1364	10
Smithson, James.—Scientific writings of. 1879. M. C. 21	327	1 00
Sökeland, H.—Ancient desemers or steelyards. 1901. R. 1900	1293	02
Stevenson, J. J.—Debt of the world to pure science. 1898. R. 1897	1144	02
Stoney, G. J.—Range of nature's operations which man is competent to study. 1901. R. 1899	1230	02
Thomson, Elihu.—Field of experimental research. 1901. R. 1899	1224	02
Thurston, R. H.—Century's progress of the steam-engine. 1901. R. 1899	1250	02
Virchow, R.—Study and research. 1896. R. 1894	1025	02
Watkins, J. E.—Transportation and lifting heavy bodies by the ancients. 1899. R. 1898	1213	02
Welch, W. A.—Modern scientific laboratories. 1896. R. 1895	1052	02
White, W. H.—Progress in steam navigation. 1901. R. 1899	1249	02
Willey, D. A.—Erection of the Gokteik bridge. 1902. R. 1901	1354	02
Wu Ting-Fang.—Mutual helpfulness, China and the U. S. 1901. R. 1900	1294	02

HODGKINS FUND PUBLICATIONS.

No.	Author.	Title.	Size or Series.	Pages.	Date.	Price.
989	**Billings, J. S., Mitchell, S. Weir, and Bergey, D. H.**	Composition of Expired air and its effects upon animal life,	S.C. xxix	84	1895	1.00
1033	**Rayleigh, Lord and Ramsay, William**	Argon,	S.C. xxix	46	1896	1.00
1034	**Duclaux, E.**	Atmospheric Actinometry,	S.C. xxix	51	1896	.75
1037	**Bergey, D. H.**	Organic matter in the air,	M.C. xxxix	30	1896	.25
1044	**Varigny, H. de**	Air and Life,	R. 1895	69	1896	.05
1045	**Russell, F.A.R**	Atmosphere, Life and Health,	R. 1895	148	1896	.10
1046	**Cohen, J. B.**	Air of Towns,	R. 1895	41	1896	.10
1047	**Billings, Mitchell, Bergey**	Expired Air,	R. 1895	21	1896	
1071	**Varigny, H. de**	Air and Life. (Same as No. 1044.)	M.C. xxxix	69	1896	.20
1072	**Russell, F.A.R**	Atmosphere, Life and Health. (Same as No. 1045.)	M.C. xxxix	148	1896	.25
1073	**Cohen, J. B.**	Air of Towns. (Same as No. 1046.)	M.C. xxxix	41	1896	.25
1077	**McAdie, A.**	Aerophysical Observatory,	M.C. xxxix	30	1897	.10
1125	**Bergey, D. H.**	Animal resistance to disease,	M.C. xxxix	10	1898	.05
1126	**Lummer, O. Pringsheim, E.**	Ratio of Specific Heats,	S.C. xxix	34	1898	.25
1309	**Barus, Carl**	Experiments with Ionized Air,	S.C. xxix	103	1901	.25
1373	**Barus, Carl**	Structure of the Nucleus,	S.C. xxix	190	1903	.25

"FOR THE INCREASE AND DIFFUSION OF KNOWLEDGE."

THE INTERNATIONAL EXCHANGE SERVICE

OF THE

SMITHSONIAN INSTITUTION.

In effecting the distribution of its first publications abroad, the Smithsonian Institution established relationships with certain foreign scientific societies and libraries, by means of which it was enabled to materially assist institutions and individuals of this country in the transmission of their publications abroad, and also foreign societies and individuals in distributing their publications in the United States.

In recent years the Smithsonian Institution has been recognized by the United States Government as in charge of its official Exchange Bureau, through which the publications authorized by Congress are exchanged for those of foreign governments; and by a formal treaty it acts as intermediary between the learned bodies and literary and scientific societies of the contracting States for the reception and transmission of their publications.

Attention is invited to the fact that this is not a domestic, but an international exchange service, and is used to facilitate such exchanges, not within the United States, but between the United States and foreign countries only.

The Smithsonian Institution will receive from any person or institution of learning in the United States a package addressed, under the following rules, to any person or institution abroad, and will deliver it to the addressee free of expense. Its agents and the exchange bureaus abroad will likewise receive from associations of learning or individuals in their respective countries such publications as may be delivered to them under rules similar to those prescribed herein, and will forward them to Washington, after which the Institution will undertake their delivery, free of expense, to the respective addresses in the United States.

The rules established for the operation of the Exchange Service provide for the distribution of books, pamphlets, charts, and other printed matter, sent as *donations or exchanges*, to any accessible point abroad, and without expense to the sender beyond that of the delivery of the packages to the Smithsonian Institution in Washington, and also without expense to the recipient. Similar material sent from abroad to this country is forwarded, prepaid by the sender, to the agents or correspondents of the Institution in their respective countries. Beyond this there is no expense to the sender.

A scientific society or an individual in the United States desiring to take advantage of the Exchange Service should have all packages strongly wrapped and legibly and fully addressed. All packages constituting a consignment should be carefully packed to avoid being damaged in transit, and forwarded to the Smithsonian Institution at Washington, carriage prepaid. The separate packages should not exceed one-half of one cubic foot in bulk, and they should not contain letters or other written matter.

In forwarding exchanges the sender should address a letter to the Institution, stating by what route the consignment is being shipped to Washington, and the number of boxes or parcels of which it is composed.

On the receipt of a consignment at the Institution each package is assigned an "invoice number," and a record is made of the entire list of packages under the sender's name. The separate packages are also entered under the name of the person or office addressed. An account is thus established with every correspondent of the Institution, which shows readily what packages each one has sent or received through the Exchange Service. The books are then packed in boxes with contributions from other senders for the same country, and are forwarded by fast freight to the bureau or agency abroad which has undertaken to distribute exchanges in that country. To Great Britain and Germany, where paid agencies of the Institution are maintained, shipments are made weekly; to other countries they are made at somewhat greater intervals.

Each package sent out contains an addressed receipt card bearing an "invoice number" identical with that upon the package. This invoice number should be carefully noted by the recipient, as it is the *means of identifying the package*, and it is important that the card should be signed and mailed to the Institution without delay. The receipt having been filed in the Exchange Office, the record of that particular package is made complete, while failure to return the receipt card gives rise to doubt as to the correctness of the address, and future packages for that address may be returned to the sender.

Transmissions from abroad are received by freight in large boxes, and are distributed in the United States under frank by registered mail, a record first having been made of the name of the sender and of the address of each package. A receipt card, returnable by mail without postage, is sent with each of these packages, and the recipient should sign and return it to the Institution at once as an acknowledgment of the package.

The Institution and its agents will not knowingly receive for any address purchased books, nor apparatus or instruments of any description, whether purchased or presented, nor specimens of natural history except where special permission from the Institution has been obtained.

The following is a list of countries and exchange bureaus or distributing agencies therein to which publications are forwarded by the Institution for distribution, and which in turn receive and transmit similar contributions to the Institution for distribution in the United States. It represents all parts of the world and exemplifies the motto, "Per Orbem," on the Smithsonian seal:

Algeria (*via* France).
Angola (*via* Portugal).
Argentina: Museo Nacional, Buenos Ayres.
Austria: K. K. Statistische Central-Commission, Vienna.
Azores (*via* Portugal).
Belgium: Service Belge des Échanges Internationaux, Brussels.
Bolivia: Oficina Nacional de Inmigración, Estadística y Propaganda Geográfica, La Paz.
Brazil: Serviço de Permutações Internacionaes, Bibliotheca Nacional, Rio de Janeiro.
[*] British Colonies: Crown Agents for the Colonies, London.
Bulgaria: Doctor Paul Leverkühn, Sofia.
Canada: Sent by mail.
Canary Islands (*via* Spain).
Cape Colony: Superintendent of the Stationery Department, Cape Town.
Chile: Universidad de Chile, Santiago.
China: Shipments temporarily suspended.
Colombia: Biblioteca Nacional, Bogotá.
Costa Rica: Oficina de Depósito y Canje de Publicaciones, San José.
Denmark: Kongelige Danske Videnskabernes Selskab, Copenhagen.
Dutch Guiana: Surinaamsche Koloniale Bibliotheek, Paramaribo.
Ecuador: Biblioteca Nacional, Quito.
East India; India Store Department, India Office, London.
Egypt: Société Khédiviale de Géographie, Cairo.
France: Bureau Français des Échanges Internationaux, Paris.
Friendly Islands: Sent by mail.
Germany: Doctor Felix Flügel, Äussere Halle'sche Strasse No. 18, Leipzig-Gohlis.
Great Britain and Ireland: Messrs. William Wesley & Son, 28 Essex Street, Strand, London.
Greece: Professor R. B. Richardson, Director American School of Classical Studies, Athens.
Greenland (*via* Denmark).
Guadeloupe (*via* France).
Guatemala: Instituto Nacional de Guatemala, Guatemala.
Guinea (*via* Portugal).
Haiti: Secrétaire d'Etat des Relations Extérieures, Port au Prince.
Honduras: Biblioteca Nacional, Tegucigalpa.
Hungary: Doctor Joseph von Körösy, "Redoute," Budapest.
Iceland (*via* Denmark).

---

[*] This method is employed for communicating with a large number of the British Colonies with which no means is available for forwarding exchanges direct.

Italy : Ufficio degli Scambi Internazionali, Biblioteca Nazionale Vittorio Emanuele, Rome.
Java (*via* Netherlands).
Korea (*via* Russia).
Liberia : Care of American Colonization Society, Washington, D. C.
Luxemburg (*via* Germany).
Madagascar (*via* France).
Madeira (*via* Portugal).
Mexico : Sent by mail.
Mozambique (*via* Portugal).
Natal : Agent-General for Natal, London.
Netherlands : Bureau Scientifique Central Néerlandais, Bibliothèque de l'Université, Leyden.
New Guinea (*via* Netherlands).
New Hebrides : Sent by mail.
Newfoundland : Sent by mail.
New South Wales : Government Board for International Exchanges, Sydney.
New Zealand : Colonial Museum, Wellington.
Nicaragua : Ministerio de Relaciones Exteriores, Managua.
Norway : Kongelige Norske Frederiks Universitet, Christiania.
Paraguay : Ministerio de Relaciones Exteriores, Asuncion.
Persia (*via* Russia).
Peru : Biblioteca Nacional, Lima.
Portugal : Bibliotheca Nacional, Lisbon.
Queensland : Chief Secretary's Office, Brisbane.
Roumania (*via* Germany).
Russia : Commission Russe des Échanges Internationaux, Bibliothèque Impériale Publique, St. Petersburg.
Salvador : Museo Nacional, San Salvador.
Santo Domingo : Sent by mail.
Servia (*via* Germany).
Siam : Board of Foreign Missions of the Presbyterian Church, New York.
South Australia : Astronomical Observatory, Adelaide.
Spain : Oficina para el Canje de Publicaciones Oficiales, Cientificas y Literarias, Seccion de Propiedad Intelectual del Ministerio de Fomento, Madrid.
Sumatra (*via* Netherlands).
Syria : Board of Foreign Missions of the Presbyterian Church, New York.
Sweden : Kongliga Svenska Vetenskaps Akademien, Stockholm.
Switzerland : Service des Échanges Internationaux, Bibliothèque Fédérale Centrale, Bern.
Tasmania : Royal Society of Tasmania, Hobart.
Tunis (*via* France).
Turkey : American Board of Commissioners for Foreign Missions, Boston.
Uruguay : Oficina de Depósito, Reparto y Canje Internacional, Montevideo.
Venezuela : Biblioteca Nacional, Caracas.
Victoria : Public Library, Museums, and National Gallery, Melbourne.
Western Australia : Victoria Public Library, Perth.
Zanzibar : Sent by mail.

SMITHSONIAN INSTITUTION

WASHINGTON CITY, *December, 1902.*

This work (No. 1372), "The International Exchange Service of the Smithsonian Institution," forms part of Smithsonian Miscellaneous Collections, Volume XLIV.

LIBRARY CATALOGUE SLIPS

Smithsonian Institution.

Smithsonian Miscellaneous Collections, vol. XLIV. (Number 1372.)

The International Exchange Service of the Smithsonian Institution. City of Washington, published by the Smithsonian Institution. 1902. 8°. 4 pp.

The International Exchange Service of the Smithsonian Institution. City of Washington, published by the Smithsonian Institution. 1902. 8°. 4 pp.

From Smithsonian Miscellaneous Collections, vol. XLIV. (Number 1372.)

The International Exchange Service of the Smithsonian Institution. City of Washington, published by the Smithsonian Institution. 1902. 8°. 4 pp.

From Smithsonian Miscellaneous Collections, vol. XLIV. (Number 1372.)

Stanford University Library
FEB 16 1904

SMITHSONIAN MISCELLANEOUS COLLECTIONS
PART OF VOLUME XLIV

INDEX TO THE LITERATURE
OF
THORIUM
1817-1902

BY
CAVALIER H. JOÜET, PH. D.
LECTURER IN ANALYTICAL CHEMISTRY, COLUMBIA UNIVERSITY, NEW YORK

(No. 1374)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
1903

SMITHSONIAN MISCELLANEOUS COLLECTIONS.

1374

INDEX TO THE LITERATURE

OF

THORIUM.

1817-1902.

BY

CAVALIER H. JOÜET, PH. D.,
LECTURER IN ANALYTICAL CHEMISTRY, COLUMBIA UNIVERSITY, NEW YORK.

CITY OF WASHINGTON:
PUBLISHED BY THE SMITHSONIAN INSTITUTION.
1903.

WASHINGTON, D. C.
PRESS OF JUDD & DETWEILER
1903

LETTER OF TRANSMITTAL.

WASHINGTON, D. C., *October 9, 1902.*

The Committee on Indexing Chemical Literature, appointed in 1882 by the American Association for the Advancement of Science, has voted to recommend to the Smithsonian Institution for publication the following:

"INDEX TO THE LITERATURE OF THORIUM,

by Cavalier H. Joüet, Ph. D."*

HENRY CARRINGTON BOLTON,
Chairman.

Mr. S. P. LANGLEY,
Secretary of Smithsonian Institution.

---

* This forms one of the following series:

Index to the Literature of Uranium, 1785–1885, by Henry Carrington Bolton, 1885.

Index to the Literature of Columbium, 1801–1887, by Frank W. Traphagen, 1888.

Index to the Literature of the Spectroscope, by Alfred Tuckerman, 1888, 1902.

Index to the Literature of Thermodynamics, by Alfred Tuckerman, 1890.

A Bibliography of the Chemical Influence of Light, by Alfred Tuckerman, 1891.

A Bibliography of Aceto-Acetic Ester, by Paul H. Seymour, 1894.

Index to the Literature of Didymium, 1842–1893, by A. C. Langmuir, 1895.

Indexes to the Literature of Cerium and Lanthanum, by W. H. Magee, 1895.

A Bibliography of the Metals of the Platinum Group, by Jas. Lewis Howe, 1897.

Review and Bibliography of the Metallic Carbides, by J. A. Mathews, 1898.

Index to the Literature of Thallium, 1861–1897, by Miss Martha Doan, 1898.

Index to the Literature of Zirconium, by A. C. Langmuir and Charles Baskerville, 1899.

A Bibliography of the Analytical Chemistry of Manganese, 1785–1900, by Henry P. Talbot and John W. Brown, 1902.

PREFACE.

This Index to the Literature of Thorium has been prepared after a very laborious and painstaking search through many scientific and technical journals.

Most of the references have been verified, and usually the original article heads the list, but in some few cases this was difficult to determine.

It is not offered as absolutely complete, and the compiler requests that any one using the index would send corrections and addenda to him.

Minerals now recognized as containing thorium have been mentioned only in such cases when the earth has been found. The patent literature relative to the use of thorium in the arts is not included.

C. H. J.

COLUMBIA UNIVERSITY,
NEW YORK, 1902.

INDEX TO THE LITERATURE OF THORIUM.

(1817-1902.)

BY CAVALIER H. JOÜET, Ph. D.

1817: 1. Gahn, Wallmann, Eggertz, Berzelius. Undersökning af några i trakten kring Fahlun funna Fossilier, och af deras Lagerställen.

Afh. Fys. Kemi, 1818, **5**, 1-93; Oken, Isis, 1819, col 391-409; J. für Chem. (Schweigger), 1817, **21**, 25-43; Ann. Phil. (Thomson), 1817, **9**, 160-161, 452-460; Ann. chim. phys., 1817, **5**, 5-21; Quart. Jour. Sci. Arts, 1817, **2**, 443; Ann. Mines, 1818, [**1**], **3**, 151-160; Roy. Soc. C. Sci. Papers, 1867, **1**, 340, and 1868, **2**, 457, 754.

1817: 2. Note. New earth discovery, Thorine.

Ann. Phil. (Thomson), 1817, **9**, 412.

1817: 3. Gahn. Thorine, eine neue Erde.

Oken, Isis, 1817, **1**, col 1317-1320; Roy. Soc. C. Sci. Papers, 1868, **2**, 754.

1817: 4. Bernhardi. Das allgemeine Krystallizations system der chemischen Elemente. "Thorinium."

J. für Chem. (Schweigger), 1817, **21**, 4-24; Roy. Soc. C. Sci. Papers, 1867, **1**, 304.

1818: 5. Berzelius. Chemische Entdeckungen im Mineralreiche gemacht zu Fahlun in Schweden, Thorina, eine neue Erde. "Nachricht von Herrn Berzelius neuer Erde, Thorina."

Ann. der Phys. Pogg., 1818, **59**, 247-254; Roy. Soc. C. Sci. Papers, 1867, **1**, 333.

1821: 6. Berzelius. Nya metalliska Kroppar. "Thorium."

Årsb. Phys. Kemi, 1821, 66; Berzelius' Jsb., 1822, **1**, 50; Archiv. Bergbau, 1823, **8**, 376.

1821: 7. Berzelius. Thorjord funnen på Bornholm (now problematical).

Årsb. Phys. Kemi, 1821, 57; Berzelius' Jsb., 1822, **1**, 40.

1823: 8. Berzelius. Undersökning af flusspats-syran och dess märkvärdigaste föreningar. "Tillagg om Thorjorden" (proves to be yttrium phosphate).

Kongl. Sv. Vet. Acad. Handl., 1823, 284-359; 1824, 46-98, 278-328; Ann. chim. phys., 1824, **26**, 39-43; 1824, **27**, 53-67, 167-177, 287-308, 337-359; 1825, **29**, 295-314, 337-372; Ann. der Phys. Pogg., 1824, **1**, 1-48, 169-230; 1824, **2**, 113-150; 1825, **4**, 1-22, 117-156; Phil. Mag., 1824, 392-393; 1825, **65**, 254-267; J. für Chem. (Schweigger)

1825, **44**, 348–350; Årsb. Phys Kemi, 1825, 118; Berzelius' Jsb., 1826, **5**, 112, 113; Ann. Mines, 1826 [1], **12**, 190; Quart. Jour. Sci. Arts, 1825, **18**, 156, 157; Annals Phil. (Thomson), 1824, **8**, 330–343, 450–457; 1824, **9**, 124–131; 1824, **10**, 116–130; Roy. Soc. C. Sci. Papers, 1867, **1**, 335.

1825: 9. Lettre de M. Berzelius à M. Brogniart. March 15, 1825. Observations sur diverses espèces Minerâles, extraites d'une lettre de M. Berzelius, à M. Brogniart.

Ann. des sci. naturelles, 1825, No. **5**, 430–432; Ann. Phil. (Thomson), 1826, **11**, 23–24; Edin. J. Sci., 1825, **3**, 332–334; Roy. Soc. C. Sci. Papers, 1867, **1**, 335.

1826: 10. Wöhler. Ueber den Pyrochlor, eine neue Mineral species "Ceroxyd" (unrein).

Ann. der Phys. Pogg., 1826, **7**, 417–428; Ztschr. Kryst, 1826, **2**, 385–389; Ber., 1882, **15**, 3150*a*; Berzelius' Jsb., 1828, **7**, 175–176; Årsb. Phys. Kemi, 1827, 172–173; Beudant. Min., 1832, vol. 2, 649, 756; Rammelsberg's Min. Chem., 1875, 2d ed., 371–375; Roy. Soc. C. Sci. Papers, 1872, **6**, 411.

1827: 11. Rose. Pyrochlore, a new mineral species.

Edin. J. Sci., 1827, **6**, 358–361.

1828: 12. Berzelius. Ueber den Thorit, ein neues mineral und eine darin enthaltene neue Erde, die Thorerde.

Ann. der Phys. Pogg., 1829, **15**, 633–634; Berzelius' Traité de Chimie, French ed., 1846, **2**, 179–184: Rammelsberg's Min. Chem., 1860, 544–546; Edin. J. Sci., 1829, **1**, 207–209; 1829, **2**, 223–225; Quart. Jour. Sci. Arts, 1829, **2**, 412–413; 1830, **1**, 88–104; 1830, **1**, 417–419; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, II^1, 881; Hensmans, Repertoire, 1829, June; Phil. Mag., 1829, **6**, 392–393; Roy. Soc. C. Sci. Papers, 1867, **1**, 336.

1829: 13. Berzelius. Undersökning af ett nytt mineral som innehåller en förut obekant jord.

Kongl. Sv. Vet. Akad. Handl., 1829, 1–30; Berzelius' Lehrbuch d. Chemie, 1845, **3**, 1224; 1845, 5° Auf. **2**, 189–194; 1845, 5° Auf. **3**, 511–518; Ann. der Phys. Pogg., 1829, **16**, 385–414; Ann. chim. phys., 1830, **43**, 5–38; J. techn. Chem., 1829, **2**, 463–464; Bibl. Univ., 1829, n. s., **42**, 291–311; 1830, n. s., **43**, 48–64; Quart. Jour. Sci. Arts, 1829, **2**, 296–302; 1830, **1**, 88–104; Gmelin-Kraut, Handb. anorg. Chemie, 1875, **1**, 57; 1897, 2^2, 144, 226, 694, 976; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 173–174; Dana's Min., 1874, 5th ed., 413; Roy. Soc. C. Sci. Papers, 1867, **1**, 336.

1829: 14. Berzelius. Extrait d'une lettre de M. Berzelius à M. Dulong sur la découverte d'une nouvelle terre, la Thorine. Séances de l'acad. royale des sciences. Paris, 1829, July 20.

Ann. chim. phys., 1829, **41**, 422–423; 1829, **42**, 67; L'Universel, 1829, No. 206, July 25; Bibl. Univ., 1829, **41**, 255–256; Le Globe, 1829, [7], **58**, 463, July 22; J. de pharm., 1829, **15**, 488–489; Am. J. Sci., 1830, **17**, 381; Roy. Soc. C. Sci. Papers, 1867, **1**, 336.

1829: 15. Berzelius. Thorina and Thorinium.

Bibl. Univ., 1829, **41**, 255–256; Phil. Mag., 1830, **7**, 388–389.

1829: 16. Editor's notice. Thorine, a new earth. Thorite (Brevig mineral).

Edinb. Phil. J., 1829, **20**, 363.

1829: 17. Berzelius. Entdeckung einer neuen Erde und eines neuen Metalls der Thorerde und des Thoriums.

J. für Chem. (Schweigger), 1829, **57**, 492–493.

1829: 18. Bulletin des travaux de la Société de Pharmacie de Paris. Extraits du procès verbal. Séance du 15 Août. Sur la thorine "Dulong donne lecture d'une lettre de M. Berzelius."

J. de pharm., 1829, **15**, 488–489.

1829: 19. Editorial. Atomgewichte der einfachen Körper nach Berzelius' neuesten Bestimmungen.

J. tech. Chem., 1829, **2**, 455–470.

1830: 20. Berzelius. Atomengewichte der einfachen Körper.

Pharm. Centrbl., 1830, 8–10.

1830: 21. Berzelius. Untersuchung einer minerals von Brevig, Norwegen. "Thorium," "Thorit."

Kongl. Sv. Vet. Acad. Handl., 1829, 1–30; Årsb. Phys. Kemi, 1830, 95–97; Berzelius' Jsb., 1831, **10**, 98–100.

1830: 22. Berzelius. Thorerdesalze.

Kongl. Sv. Vet. Acad. Handl., 1829, 18; Årsb. Phys. Kemi, 1830, 139; Berzelius' Jsb., 1831, **10**, 143–144.

1831: 23. Berzelius. Om Vanadin och dess egenskaper. "Vanadinsyrad Thorjord."

Kongl. Sv. Vet. Acad. Handl., 1831, 1–67; Ann. der Phys. Pogg., 1831, **22**, 1–67; Ann. chim. phys., 1831, **47**, 337–409; J. für Chem. (Schweigger), 1831, **62**, 121–124; 323–374; Berzelius, Traité de Chimie, 1831, t. **4**, 642–686; J. für Chem. (Schweigger), 1831, **63**, 26–54; Årsb. Phys. Kemi, 1831, 99–110; Berzelius' Jsb., 1832, **11**, 97–108; J. tech. chem., 1831, **1**, 141–142; Ztschr. Physik u. Mathematik, 1831, **9**, 391–392; Phil. Mag., 1831, **10**, 321–337; 1831, **11**, 7–20; Magazin für Pharm., 1831, **33**, 249–253; Roy. Soc. C. Sci. Papers, 1868, **2**, 336; 1872, 6.

1832: 24. Berzelius. Recherches sur la thorine, nouvel oxyde.

Ann. der Phys. Pogg., 1829, **16**, 385–415; Ann. Mines, 1832 [3], **1**, 98–106.

1832: 25. Berzelius. Analyse du thorite minéral contenant une nouvelle terre.

Ann. der Phys. Pogg., 1829, **16**, 385–415; Ann. Mines, 1832 [3], **1**, 183–185.

1840: 46. Shepard. On the identity of Edwardsite with Monazi (Mengite) and on the composition of the Missouri meteorite.

Am. J. Sci., 1840, **39**, 249–255; Jahrb. Min., 1841, 374, Ref.; Sturgeon, Ann. Electr., 1841, **6**, 54–58; Roy. Soc. C. Sci. Papers, 1871, **5**, 676.

1840: 47. Scheerer. Ueber den Euxenit, eine neues mineral.

Ann. der Phys. Pogg., 1840, **50**, 149–153; Jahrb. Min., 1842, 330; Rev. sci. Quesneville, 1841, **7**, 60; Årsb. Phys. Kemi, 1841, 140–141; Berzelius' Jsb., 1842, **21**, 179–180; Rammelsberg's Min. Chem., 1875, 2d ed., 368–370; Edin. Phil. J., 1840, **29**, 417–418; Roy. Soc. C. Sci. Papers, 1871, **5**, 449.

1841: 48. Berzelius. Atomgewichte der einfachen Körper.

Pharm. Centrbl., 1841, 1–2.

1842: 49. Berzelius. Atomgewichte der einfachen Körper.

Pharm. Centrbl., 1842, 1–2.

1842: 50. Nordenskiöld. Utkast till ett examinations-system för mineralierne.

Acta Societatis Scientiarum Fennicæ, 1842, **1**, 627–685; Roy. Soc. C. Sci. Papers, 1870, **4**, 640.

1842: 51. Rose. "Pyrochlor" and "Monazit."

Reise nach dem Ural, 1842, **2**, 64–66, 87–92, 447.

1843: 52. Berzelius. Atomgewichte und Aequivalente der einfachen Körper.

Pharm. Centrbl., 1843, 1–4.

1844: 53. Berzelius. Atomgewichte und Aequivalente der einfachen Körper.

Pharm. Centrbl., 1844, 1–4.

1844: 54. Hermann. Untersuchung einiger Russischen mineralien "Aeschynit und Pyrochlor von Miask."

Bull. soc. imp. Moscou, 1844, **17**, pt. 3, 605–624; J. präkt. Chem., 1844, **31**, 94–99; 1846, **39**, 246; Årsb. Kemi, 1845, 282–283; Årsb. Phys. Kemi (Rapport annuel), 1845, 218–219; Berzelius' Jsb., 1846, **25**, 375, 376; Ann. der Phys. Pogg., 1847, **70**, 336; Annuaire de Chimie, 1845, 204–208; Jahrb. Min, 1844, 826, Ref.; 1847, 828, Ref.; Rammelsberg's Min. Chem., 1875, 2d ed., 370, 371–375; Nachricht von G. A. Univ. Göttingen, 1846, No. **18**, 285; Rev. sci. Quesneville, 1844, 2° series, No. **2**, 214–215; Gmelin-Kraut, Handb. anorg. Chem., 1897, **2^2**, 86; Rev. sci. Quesneville, 1847, 2° series, **14**, 415; Jahrb. Min., 1848, 720. Ref.; Berg. u. H. Ztg., 1844, **3**, 582–583; Dana's Min., 1874, 5th ed. 513; Roy. Soc. C. Sci. Papers, 1869, **3**, 311; 1872, **6**, 414.

1844: 55. Rose. Ueber die Titansäure. "Ueber die in Natur vorkommenden Mineralien, Tschewkinit." (Rose finds no thoria, but later Hermann does find thoria.)

Berichte. Königl. Acad. d. Wiss. Berlin, 1844, 105–119, 163–168, 248–252, 286–290; J. präkt. Chem., 1844, **32**, 296–310, 472–476; 1844, **33**,

233–236; Ann. Chem. (Liebig), 1845, **53**, 267–283, 411–422; Ann. der Phys. Pogg., 1844, **61**, 507–531; 1844, **62**, 119–131, 253–270, 591–596; Majocchi. Ann. fis. chim., 1845, **19**, 60–61; Ann. chim. phys., 1844, **12**, 176–187; 1845, **15**, 290–320; Rammelsburg's Min. Chem., 1875, 2d ed., 673; Dana's Min., 1874, 5th ed., 387–388; Gmelin-Kraut, Handb. anorg. Chemie, 1897, **2**^{2}, 37–38; Roy. Soc. C. Sci. Papers, 1871, **5**, 283.

1844: 56. Hermann. Untersuchung des Monazits, namentlich in Bezug auf den angeblichen Thorerdegehalt desselben.

J. prakt. Chem., 1844, **33**, 90–94; Årsb. Kemi, 1845, 283–284; Berzelius' Jsb., 1846, **25**, 376–377; Jahrb. Min., 1845, 590, 699 R.; Årsb. Phys. Kemi, (Rapport annuel), 1845, 219; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **2**^{1}, 560; Annuaire de Chimie, 1845, 208–210; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 305–306; Roy. Soc. C. Sci. Papers, 1869, **3**, 311.

1845: 57. Scheerer. Thorit.

Ann. der Phys. Pogg., 1845, **65**, 276–310; Jahrb. Min., 1846, 234; Rev. Sci. Quesneville, 1845, 2° series, **7**, 197; Berg. u. H. Ztg., 1845, **4**, 849–859, 891–900.

1845: 58. Berzelius. Atomgewichte und Aequivalente der einfachen Körper.

Pharm. Centrbl., 1845, 1–4.

1846: 59. Berzelius. Aequivalente und Atomgewichte der einfachen Körper.

Pharm. Centrbl., 1846, 1–4.

1846: 60. Hermann. Untersuchungen russischer Mineralien. "Ueber Ilmenium, ein neues metall, auch über Titan, Tantal und Niobium, so wie über Aeschynit, Ytteroilmenit und Columbit."

J. prakt. Chem., 1846, **38**, 91–124; Arch. sci. phys., 1846, **2**, 383–392; Jahrb. Min., 1847, 59, 351–353 R.; J. de pharm., 1846, **10**, 290–307; Annuaire de Chimie, 1847, 95–104, 264–266; Årsb. Phys. Kemi, 1847, 75–76; Berzelius' Jsb., 1848, **27**, 97–98; Årsb. Phys. Kemi, (Rapport annuel), 1847, 58–59; Årsb. Phys. Kemi, 1847, 200–201; Berzelius' Jsb., 1848, **27**, 254; Årsb. Phys. Kemi, (Rapport annuel), 1847, 151–152; Årsb. Phys. Kemi, 1847, 184–185; Rammelsberg's Min. Chem., 1875, 2d ed. 364–366; Berzelius' Jsb., 1848, **27**, 235–236; Årsb. Phys. Kemi, (Rapport annuel), 1847, 139; Roy. Soc. C. Sci. Papers, 1869, **3**, 312.

1846: 61. Wöhler. Über den Kryptolith (mentions absence of thorium).

Nachricht von G. A. Univ. Göttingen, 1846, No. **2**, 19–23; Ann. der Phys. Pogg., 1846, **67**, 424–427; Jahrb. Min., 1846, 731; Ber., 1882, **15**, 3206*a*; Ann. chem. (Liebig), 1846, **57**, 268–272; Årsb. Phys. Kemi, 1846, 248–249; Berzelius' Jsb., 1847, **26**, 336–337; Årsb. Phys. Kemi, (Rapport annuel), 1846, 186–187; Phil. Mag., 1846, **29**, 31–32; Edin. n. Phil. J., 1846–1847, **42**, 378–379; Annuaire de Chimie, 1847,

246–249; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **2**^{1}, 559–560; Rammelsberg's Min. Chem., 1875, 2 auf., **2**, 304–305; Dana's Min., 1874, 5th ed., 529; Roy. Soc. C. Sci. Papers, 1872, **6**, 414.

1846: 62. Playfair and Joule. Section II. Researches on atomic volume and specific gravity (oxide of thorium = 67.6). Specific gravity = 9.402; atomic volume = 7.19.

Proc. Chem. Soc. Lond., 1845–1848 [**3**], 57–103; Roy. Soc. C. Sci. Papers, 1869, **3**, 584; 1870, **4**, 940.

1847: 63. Wöhler. Über den Thorerdegehalt des Pyrochlors.

Ann. chem. (Liebig), 1847, **61**, 264; Rammelsberg's Min. Chem., 1875, 2d ed., 371–375; Jahrb. Min., 1848, 326; Annuaire de Chimie, 1848, 175; Jsb. Chem., 1847–1848, 1205.

1847: 64. Hermann. Fortgesetzte Untersuchungen über die Zusammensetzung des Monazits, namentlich in Beziehung auf den angeblichen Thorerde–Gehalt desselben.

J. prakt. Chem., 1847, **40**, 21–34; J. de pharm., 1847, **11**, 389–392; Annuaire de Chimie, 1848, 146–147; Majocchi, Ann. fis. chim., 1847, **26**, 122–131; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 305–306; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II**^{1}, 560; Jsb. Chem., 1847–1848, 1215–1216; Roy. Soc. C. Sci. Papers, 1869, **3**, 312; 1872, **6**, 686.

1847: 65. Hermann. Untersuchungen über das Ilmenium.

J. prakt. Chem., 1847, **40**, 457–480; J. de pharm., 1847, **12**, 313–318; Årsb. Phys. Kemi, 1847, 54–59; Berzelius' Jsb., 1849, **28**, 64–70; Annuaire de Chimie, 1848, 8–9, 97–102, 175; Rammelsberg's Min. Chem., 1875, 2d ed., 364–366; Majocchi, Ann. fis. chim., 1847, **27**, 252–253; Jsb. Chem., 1847–1848, 404; Chem. Centrbl., 1847, 497–503, 503–505; Roy. Soc. C. Sci. Papers, 1869, **3**, 312; 1872, **6**, 686.

1847: 66. Berzelius. Aequivalente und Atomgewichte der einfachen Körper.

Pharm. Centrbl., 1847, 1–4.

1847: 67. Le Conte. On Coracite, a new ore of Uranium.

L'Institut, 1847, No. 714, 295; Am. J. Sci., 1847 [2], **3**, 173–175; Chemist (Watt), 1847, 242–243; N. Jena. Lit. Ztg., 1848, 855; Jahrb. Min., 1847, 591 Ref.; Annuaire de Chimie, 1848, 163; Jsb. Chem., 1847–1848, 1167; Roy. Soc. C. Sci. Papers, 1869, **3**, 916.

1847–1848: 68. Editorial. Coracit.

Jsb. Chem., 1847–1848, 1167.

1848: 69. Weibye. Beiträge zur topographischen Mineralogie Norwegens.

Archiv. Bergbau., 1848, **22**, 465–544.

1848: 70. Berzelius. Atomgewichte und Aequivalente der einfachen Körper.

Pharm. Centrbl., 1848, 1–3.

1849: 71. Whitney. Chemical examination of some minerals, Coracite of Le Conte.

> Jour. Boston Soc. Nat. Hist., 1850–1857, **6**, 36–42; Am. J. Sci., 1849 [2], **7**, 434; J. prakt. Chem., 1849, **51**, 127–128; Phil. Mag., 1850 [3], **37**, 153–154; Annuaire de Chimie, 1851, 204; Jahrb. Min., 1851, 592; Rammelsberg's Min. Chem., 1875, 2d ed., 176; Jsb. Chem., 1849, 734; Roy. Soc. C. Sci. Papers, 1872, **6**, 352.

1849: 72. Berzelius. Atomgewichte und Aequivalente der einfachen Körper.

> Pharm. Centrbl., 1849, 1–3.

1849: 73. Berzelius. Acide pyruvique.

> Berzelius' Traité de chimie, 1849, 2° edit, **5**, 187–206.

1850: 74. Berzelius. Atomgewichte der einfachen Körper.

> Pharm. Centrbl., 1850, 2–3.

1850: 75. Hermann. Untersuchungen über die Zusammensetzung der Tantalerze.

> Bull. soc. imp. Moscou, 1850, **23**, pte. 3, 223–275; J. prakt. Chem., 1850, **50**, 164–200; Jahrb. Min., 1852, 75, 76, 209; Gmelin-Kraut, Handb. anorg. Chemie, 1897, **2**^{2}, 86; Annuaire de Chimie, 1851, 201–204; Dana's Min., 1874, 5th ed., 512, 513; Rammelsberg's Min. Chem., 1875, 2d ed., 364–366, 370, 371–375; Jsb. Chem., 1850, 748–750; Erman, Archiv. Russ., 1852, **10**, 260–301; Roy. Soc. C. Sci. Papers, 1869, **3**, 312.

1851: 76. Bergemann. Entdeckung eines neuen Metalls Donarium, in einem Mineral von Brevig.

> Berichte Königl. Akad. d. Wiss. Berlin, 1851, 221–223; J. prakt. Chem., 1851, **53**, 239–242; Roy. Soc. C. Sci. Papers, 1867, **1**, 290.

1851: 77. Bergemann. Beiträge zur kenntniss eines neuen metallischen Körpers Donarium. Donaria.

> Ann. der Phys. Pogg., 1851, **82**, 561–585; Institut, 1851, 287–288; J. de pharm., 1851 [3], **20**, 247–251; Arch. sci. phys., 1851, **17**, 326–329; Pharm. Centrbl., 1851, 545–553; Am. J. Sci., 1851 [2], **12**, 280–281, 387, 433–434; Edin. New Phil. J., 1851, **51**, 193; Ann. chem. (Liebig), 1851, **80**, 267–271; Pharm. Centrbl., 1852, 443–444; J. de pharm., 1852 [3], **22**, 71–75; Ann. chim. phys., 1852 [3], **35**, 235–248; Jsb. Chem., 1851, 340–342, 790; Phil. Mag., 1851 [4], **1**, 583–586; 1852 [4], **4**, 156–157; Rammelsberg's Min. Chem., 1875, 2 auf. **2**, 173–174; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II**^{1}, 880, 881; Dana's Min., 1874, 5th ed., 413; Roy. Soc. C. Sci. Papers, 1867, **1**, 289.

1851: 78. Krantz. Ueber den Orangit.

> Ann. der Phys. Pogg., 1851, **82**, 586–587; Arch. Sci. phys., 1851, **18**, 58–59; Ann. Chem. (Liebig), 1851, **80**, 267–271; Phil. Mag., 1851 [4], **2**, 390; Jsb. Chem., 1851, 790–791; Jahrb. Min., 1852, 80; Roy. Soc. C. Sci. Papers, 1869, **3**, 744.

1851: 79. Rose. Donarium, ein neues Metall.

Ztschr. deut. geol. Ges., 1851, **3**, 123–124; Jahrb. Min., 1852, 76–77.

1852: 80. Rose. Ueber die Oxyde des Thoriums und Donariums.

Berichte Königl. Akad. d. Wiss., Berlin, 1852, 179; Roy. Soc. C. Sci. Papers, 1871, **5**, 287

1852: 81. Damour. Recherches chimiques sur un nouvel oxyde extrait d'un minéral trouvé en Norwége, examen et analyse de l'orangite.

C. R., 1852, **34**, 685–688; Institut, 1852, 137; Ann. Mines, 1852 [5], **1**, 587–596; Ann. Chem. (Liebig), 1852, **84**, 237–240; Am. J. Sci., 1852 [2], **14**, 260; Jsb. Chem., 1852, 367–369; Am. J. Sci., 1853 [2], **15**, 442; Arch. S [illegible], 147–148; J. prakt. Chem., 1852, **57**, 378; Pharm. Centrbl., 1852, 443–444; Phil. Mag., 1852 [4], **4**, 156–157; Jahrb. Min., 1854, 447; Froriep's Tagsberichte, 1852, 328; Edin. Phil. J., 1852, **53**, 274; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 173–174; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II**^{1}, 880, 881; Dana's Min., 1874, 5° ed., 413; Roy. Soc. C. Sci. Papers, 1868, **2**, 138.

1852: 82. Damour. Ueber die Thorerde und die Donarerde. I. Auszug eines Schreibens des Hrn. A. Damour in Paris vom 26 März d. J. an Hrn. Rose. Donarium in orangite.

Ann. der. Phys. Pogg., 1852, **85**, 555–556; J. prakt. Chem., 1852, **56**, 308–309; Edin. Phil. J., 1852, **53**, 274; 1853, **54**, 183; Pharm. Centrbl., 1852, 443–444; Phil. Mag., 1852 [4], **4**, 156–157; Roy. Soc. C. Sci. Papers, 1867, **1**, 298; 1868, **2**, 138.

1852: 83. Berlin. II. Auszug eines Schreibens des Hrn. N. J. Berlin, Prof. der chemie an der Universität zu Lund vom 4 Apr. d. J. an Hrn. H. Rose. Donarium in orangite.

Ann. der Phys. Pogg., 1852, **85**, 556–558; J. prakt. Chem., 1852, **56**, 308–309; Ann. chem. (Liebig). 1852, **84**, 237–240; Am. J. Sci., 1852 [2], **14**, 260; Phil. Mag., 1852 [4], **4**, 156–157; Edin. Phil. J., 1852, **53**, 274; Pharm. Centrbl., 1852, 443–444; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 173–174; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **2**^{1}, 880, 881; Jsb. Chem., 1852, 367–369.

1852: 84. Bergemann. Ueber die Thorerde und die Donarerde.

Ann. der Phys. Pogg., 1852, **85**, 558–565; J. prakt. Chem., 1852, **56**, 309; Ann. chem. (Liebig), 1852, **84**, 237–240; Am. J. Sci., 1852 [2], **14**, 260; Edin. Phil. J., 1852, **53**, 274; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 173–174; Jsb. Chem., 1852, 367–369; Roy. Soc. C. Sci. Papers, 1867, **1**, 290.

1852: 85. Berlin. Nachträgliches über die Thorerde (Donarium oxyd) aus dem Orangit.

Ann. der Phys. Pogg., 1852, **87**, 608–610; J. prakt. Chem., 1853, **58**, 255–256; Roy. Soc. C. Sci. Papers, 1867, **1**, 298.

1852: 86. Damour and Berlin. Wasserhaltige Silicate mit basen, R_2O_3, Orangit.

Jsb. Chem., 1852, 862–863.

1853: 87. Rose. Biography of Berzelius.

Am. J. Sci., 1853 [2], **16**, 1–15, 173–186, 305–313; 1854 [2], **17**, 103–113.

1853: 88. Berlin. Neue Mineralien aus Norwegen, "Tachyaphaltit."

Ann. der Phys. Pogg., 1853, **88**, 160–162; J. prakt. Chem., 1853, **58**, 377–388; Jahrb. Min., 1853, 595–596; Berg. u. H. Ztg., 1854, 398; Rammelsberg's Min. Chem., 1875, 2 Auf., 677; 1895, Zw. Suppl., 455; Roy. Soc. C. Sci. Papers, 1867, **1**, 298.

1854: 89. Forbes. On the occur[illegible] crystalline composition of some minerals from the south of Norway.

Brit. Assoc. Adv. Sci., 1854, part **2**, 67–68; Edin. Phil. J., 1855, **I**, 62–73; 1856, **III**, 59–65; 1857, **VI**, 112–119; Pharm. Centrbl., 1855, 113–115; 1856, 137–138; Jahrb. Min., 1858, 566; Dana's Min., 1874, 5th ed., 524–525; Rammelsberg's Min. Chem., 1875, 2d ed., 662–663; Roy. Soc. C. Sci. Papers, 1868, **2**, 654.

1855: 90. Forbes and Dahll. Mineralogiskeiagttagelser om Kring Arendal og Kragerö.

Nyt Magazin för Naturvidenskaberne, 1855, **8**, **3**, 213–229; J. prakt. Chem., 1856, **66**, 446–447; Jsb. Chem., 1855, 962–963; J. Geol. Soc. Lond., 1855, **XI**, 9–13, Miscell.; Roy. Soc. C. Sci. Papers, 1868, **2**, 129, 654.

1857: 91. Damour and Descloiseaux. Examen de divers échantillons de sables auriféres et platiniféres.

Ann. chim. phys., 1857 [3], **51**, 445–450; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II¹**, 560; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 305–306.

1857: 92. Odling. On the natural groupings of the elements.

Phil. Mag., 1857, **1**, 423–439, 480–497; Jsb. Chem., 1857, 28–29.

1858: 93. Hermann. Ueber Heteromerie und Heteromere Mineralien.

J. prakt. Chem., 1858, **74**, 256–314; Jsb. Chem., 1858, 3; Roy. Soc. C. Sci. Papers, 1869, **3**, 313.

1858: 94. Hermann. Ueber systematische Eintheilung der Mineralien nach den Principien der Heteromerie.

J. prakt. Chem., 1858, **75**, 385–448; Jsb. Chem., 1858, 673; Roy. Soc. C. Sci. Papers, 1869, **3**, 313.

1859: 95. Scheerer. Thorit, ein grosseres Stück.

Berg. u. H. Ztg., 1859, 412.

1860: 96. Nordenskiöld and Chydenius. Försök att framställa kristalliserad Thorjord och Tantalsyra.

Öfv. K. Sv. Vet. Akad. förh., 1860, No. 3, **17**, 105, 133–137; Ann. der Phys. Pogg., 1860, **110**, 642–647; J. prakt. Chem., 1860, **81**, 207–

212; Pharm. Centrbl., 1860, 974–975; Chem. News, 1861, **4**, 102; Rép. chim. pure., 1861, 118, 119; Phil. Mag., 1860 [4], **20**, 378–379; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **1**, 363; 1897, 2^2, 86, 368; Jsb. Chem., 1860, 134, 145; Roy. Soc. C. Sci. Papers, 1867, **1**, 926; 1870, **4**, 639.

1860: 97. Scheerer. Nebeneinander vorkommen von Thorit und Orangit.

Berg. u. H. Ztg., 1860, **19**, 124; Ztschr. f. ges. Naturw., 1860, **16**, 94–95; Jahrb. Min., 1860, 569–570; Jsb. Chem., 1860, 769.

1860: 98. Rammelsberg. "Thorit," "Orangit."

Rammelsberg's Handb. Min. Chem., 1860, 544–546.

1861: 99. Wimmerstedt (from notes by Norkenskiöld). Orthit blandad Gadolinit från Ytterby.

Geol. Fören. Förh., 1876, [3], No. **7** (No. **35**), 226–229.

1861: 100. Möller. Analyse des Tritomits von Brevig.

Ann. Chem. (Liebig), 1861, **120**, 241–246; Am. J. Sci., 1861, **34**, 222; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 305–306.

1861: 101. Chydenius. Ueber die Thorerde und deren verbindungen.

Aus der akademischen Abhandlung. "Kemisk undersökning af Thorjord och Thorsalter," Helsingfors. 1861; see translation by Rammelsberg. Ann. der Phys. Pogg., 1863, **119**, 43–56; Bull. soc. chim. Paris, 1864, **1**, 130–134; J. prakt. Chem., 1863, **89**, 464–469; Ztschr. anal. Chem., 1863, **2**, 365–367, 475–476; Pharm. Centrbl., 1863, 712–715; Jahrb. Min., 1863, 830; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 173–174, 371–375; Dana's Min., 1874, 5° ed., 413, 513; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **1**, 363; 1874–1886, 2^1, 880, 881; 1897, 2^2, 86; Jsb. Chem., 1863, **16**, 194–197, 818, 831; Roy. Soc. C. Sci. Papers, 1867, **1**, 926.

1862: 102. Various analyses of Thorite and Orangite, by Berzelius, Damour, Bergemann, and Berlin.

Descloiseaux, Manual de Min., 1862, 133–134.

1862: 103. H. Rose (analysis by Finkener and Stephens). Ueber die Zusammensetzung der in der Natur vorkommenden niobhaltigen Mineralien, "Samarskit."

Monatsberichte Königl. Akad. d. Wiss., Berlin, 1862, 166–169; Ann. der Phys. Pogg., 1863, **118**, 339–356, 406–418, 497–516; Bull. soc. chim. Paris, 1863, **4**, 127–128; Ztschr. anal. Chem., 1864, **3**, 369–370; J. prakt. Chem., 1862, **86**, 24–27; Original Researches in Mineralogy and Chemistry, (J. Lawrence Smith), 1884, 198–199; Verh. Ges. Min. Russlands, 1863, 1–14; Rammelsberg's Min. Chem., 1875 2 Auf., 364–365; Dana's Min., 1874, 5° ed., 512, 521; Gmelin-Kraut, Handb. anorg. Chemie, 1897, 2^2, 62, 426; Jsb. Chem., 1862, 753–754; 1863, 827–830; Roy. Soc. C. Sci. Papers, 1871, **5**, 291.

1862: 104. H. Rose. Ueber die Zusammensetzung des Samarskits.

Monatsberichte Königl. Akad. d. Wiss., Berlin, 1862, 622–626; Phil. Mag., 1863 [4], **25**, 142–145; Bull. soc. chim. Paris, 1863, **4**, 360–361; J. prakt. Chem., 1863, **88**, 201–206; Jsb. Chem., 1862, 754; Roy. Soc. C. Sci. Papers, 1871, **5**, 291.

1862: 105. Bahr. Om en ny mettalloxid wasium, wasiumoxyd.

Öfv. K. Sv. Vet. Akad. Förh., 1862, **19**, 413, 415–423; Ann. der Phys. Pogg., 1863, **119**, 572–582; Bull. soc. chim. Paris, 1864, n. s., **1**, 134–136; J. prakt. Chem., 1864, **91**, 179–183; Pharm. Centrbl., 1864, 335; Chem. News, 1863, **8**, 175–176, 185; J. de Pharm., 1863, [3], **44**, 536; Quar. J. Sci., 1864, **1**, 115, 152; Arch. sci. phys., 1863, **18**, 369–372; Ann. chem. (Liebig), 1864, **131**, 364–368; Phil. Mag., 1863 [4], **26**, 488; Jsb. Chem., 1863, 199–201; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **2**^{1}, 684; Dana's Min., 1874, 5th ed., 806, suppl.; Roy. Soc. C. Sci. Papers, 1867, **1**, 154; 1877, **7**, 68.

1863: 106. Nicklès. De la non-existence du wasium comme corps simple.

C. R., 1863, **57**, 740–763; Institut, 1863, 346; Phil. Mag., 1863 [4], **26**, 488; J. prakt. Chem., 1864, **91**, 316–317; Chem. News, 1863, **8**, 279–280; Pharm. Centrbl., 1864, 335; J. de pharm., 1864 [3], **45**, 25–26; Arch. sci. phys., 1863, **18**, 369–372; Ann. chem. (Liebig), 1864, **131**, 364–368; Quar. J. Sci., 1864, **1**, 115, 152; Les Mondes, 1863, **II**, 581–583; Dana's Min., 1874, 5th ed., 806, suppl.; Jsb. Chem., 1863, 201; Roy. Soc. C. Sci. Papers, 1870, **4**, 615.

1863: 107. Nordenskiöld. Om vasiumoxiden.

Öfv. K. Sv. Vet. Akad. Förh., 1863, No. **6**, 346.

1863: 108. Bahr. Thorjorden. Vasiumoxiden.

Öfv. K. Sv. Vet. Akad. Förh., 1863, No. **10**, 475.

1863: 109. Delafontaine. Memoires sur le poids atomique du thorium et sur la formule de la thorine.

Arch. sci. phys., 1863, **18**, 343–354; Ann. chem. (Liebig), 1864, **131**, 100–111; Bull. soc. chim. Paris, 1865, n. s., **3**, 278–281; Ztschr. anal. chem., 1864, **3**, 526–529; Monit. sci., (Quesneville), 1867, 364–365; Chem. News, 1865, **11**, 279–280; J. prakt. Chem., 1865, **94**, 197–201; Am. J. Sci., 1864 [2], **38**, 417–418; Phil. Mag., 1864, **28**, 228–229; Quar. J. Sci., 1865, **2**, 665; Jsb. Chem., 1863, 197–199; Roy. Soc. C. Sci. Papers, 1868, **2**, 207; 1877, **7**, 506.

1863: 110. Delafontaine. J.-F. Bahr. Uber . . . . Sur un nouvel oxyde métallique. J. Nicklès. De la non-existence du wasium comme corps simple.

Arch. sci. phys., 1863, **18**, 369–372; Ann. chem. (Liebig), 1864, **131**, 368–372; Jsb. Chem., 1863, 201.

1863: 111. Damour. Note sur la Tcheffkinite de la côte du Coromandel (shows the absence of thoria).

Bull. geol. France, 1861–1867, **19**, 550–552; Jahrb. Min., 1863, 202–203; Jsb. Chem., 1863, 824; Rammelsberg's Min. Chem., 1875, 2d ed., 673; Dana's Min., 1874, 5th ed., 387–388; Gmelin-Kraut, Handb. anorg. Chemie, 1897, **2**^{2}, 37, 38; Roy. Soc. C. Sci. Papers, 1868, **2**, 138.

1863: 112. Chydenius. Om Thorjord i Euxenit.

Acta Societatis Scientiarum, Fennicæ, 1863, **7**, 595–598; Bull. soc. chim., Paris, 1864, **1**, 130–134; Roy. Soc. C. Sci. Papers, 1877, **7**, 390.

1863: 113. Newlands. On relations among the Equivalents.

Chem. News, 1863, **7**, 70–72.

1864: 114. Newlands. Relations between Equivalents.

Chem. News, 1864, **10**, 59–60, 94–95.

1864: 115. Delafontaine. Matériaux pour servir à l'histoire des metaux de la cerite et de la gadolinite.

Arch. sci. phys., 1864, **21**, 97–112; 1865, **22**, 30–40; 1866, **25**, 105–120; Ann. chem. (Liebig), 1865, **134**, 99–115; 1865, **135**, 188–198; Ann. der Phys. Pogg., 1865, **124**, 635–636; J. prakt. Chem., 1865, **94**, 297–304; Bull. soc. chim. Paris, 1866, **5**, 166–169; Chem. Centrbl., 1865, 654; Chem. News, 1865, **11**, 159, 172–173, 193–194, 241–242, 253; Am. J. Sci., 1865 (**2**), 40, 260; Ztschr. Chem., 1865, 266–270; 1866, 230–232; Ztschr. anal. Chem., 1866, **5**, 108–109; Jsb. Chem., 1864, 196–199; 1865, 177–180, 180–181; 1866, 184–186; Roy. Soc. C. Sci. Papers, 1877, **7**, 507.

1864: 116. Nylander. Bidrag till kännedomen om zirkonjord.

Acta Universitatis, Lund, 1864, **II**, **2**, 1–25; Jahrb. Min., 1870, 488–489; Roy. Soc. C. Sci. Papers, 1879, **8**, 521.

1864: 117. Hermann. Ueber die Scheidung der Thorerde von den Oxyden der Cer-gruppe sowie über die Zusammensetzung des Monazits.

Bull. soc. imp. Moscou, 1864, **37**, pt. 4, 450–460; J. prakt. Chem., 1864, **93**, 106–114; Bull. soc. chim. Paris, 1865, n. s., **3**, 187–188; Chem. News, 1864, **10**, 307; Jahrb. Min., 1865, 237; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II**^{1}, 560; Rammelsberg's Min. Chem., 1875, 2 Auf. **2**, 305–306; Jsb. Chem., 1864, 704–705, 863–864; Roy. Soc. C. Sci. Papers, 1877, **7**, 959.

1864: 118. Bahr. Ueber die wahrscheinliche Identität des Wasiums mit Thorium.

Ann. chem. (Liebig), 1864, **132**, 227–233; Bull. soc. chim. Paris, 1865, n. s., **3**, 281–282; J. prakt. Chem., 1865, **96**, 252–253; Jsb. Chem., 1864, 207–208; Dana's Min., 1874, 5th ed., 806, Suppl.; Roy. Soc. C. Sci. Papers, 1877, **7**, 68.

1864: 119. Popp. Notiz über das Wasiumoxyd.

Ann. Chem. (Liebig), 1864, **131**, 364–368; J. pharm., 1864 [3], **46**, 304–306; Bull. soc. chim. Paris, 1865, n. s., **3**, 419–421; Jsb. Chem., 1864, 207; Roy. Soc. C. Sci. Papers, 1879, **8**, 646.

1865: 120. Newlands. On the Law of Octaves.

Chem. News, 1865, **12**, 83.

1865: 121. Newlands. On the Cause of Numerical Relations among the Equivalents.

Chem. News, 1865, **12**, 94–95.

1865: 122. Hiortdahl. Ueber die Einwirkung der Zirkonerde auf die Kohlensäure Alkalien (note on "Thorerde entwickelt keine Kohlensäure beim Glühen mit kohlens. Natron.")

Ann. chem. (Liebig), 1866, **137**, 34–37; C. R., 1865, **61**, 175–178; Institut, 1865, 251; Ztschr. Chem., 1865, **8**, 619–621; J. de pharm., 1865 [4], **3**, 148; Quar. J. Sci., 1865, **2**, 664–665; Jsb. Chem., 1865, 184–186.

1865: 123. Hermann. Untersuchungen über Tantal und Niobium, so wie über Ilmenium, ein neues metall.

Bull. soc. imp. Moscou, 1865, **38**, pte. 1, 291–368; J. prakt. Chem., 1865, **95**, 65–118; Ztschr. Chem., 1865, 659–666; Jahrb. Min., 1865, 855–856; Gmelin-Kraut, Handb. anorg. Chemie, 1897, **2**^{2}, 86; Rammelsberg's Min. Chem., 1875, 2d ed., 364–366, 371–375; Dana's Min., 1874, 5th ed., 512, 513, 520; Ztschr. anal. Chem., 1865, **4**, 269–270, 271–272; Jsb. Chem., 1865, 209, 209–210, 896, 898–899; Roy. Soc. C. Sci. Papers, 1877, **7**, 959.

1865: 124. Hermann. Über die Zusammensetzung von Wöhlerit, Aeschynit und Euxenit, so wie Bemerkungen über Zirkonerde.

Bull. soc. imp. Moscou, 1865, **38**, pte. 1, 465–480; J. prakt. Chem., 1865, **95**, 123–134; Jahrb. Min., 1866, 89–90; Rammelsberg's Min. Chem., 1875, 2d ed., 370; Dana's Min., 1874, 5th ed., 512, 522; Jsb. Chem., 1865, 897–898, 899; Roy. Soc. C. Sci. Papers, 1877, **7**, 959.

1866: 125. Hermann. Ueber Scheidung der Zirkonerde von Titansäure und einiger anderen substanzen so wie wiederholte Prüfung des Aeschynits auf einem Gehalt an Zirkonerde.

Bull. soc. imp. Moscou, 1866, **39**, pte. 1, 46–56; J. prakt. Chem., 1866, **97**, 337–344; Bull. soc. chim. Paris, 1866, n. s. **6**, 385–387; Ztschr. anal Chem., 1866, **5**, 381–384; Ztschr. Chem., 1866, 404–405; Rammelsberg's Min. Chem., 1875, 2d ed., 370; Quar. J. Sci., 1866, **3**, 577; Dana's Min., 1874, 5th ed., 512, 522; Jsb. Chem., 1866, 797–799; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1866: 126. Hermann. Ueber die Zusammensetzung des Tschewkinits.

Bull. soc. imp. Moscou, 1866, **39**, pte. 1, 57–64; J. prakt. Chem., 1866, **97**, 345–350; Bull. soc. chim. Paris, 1866, n. s. **6**, 382–383; Ztschr. Chem., 1866, 405; Jahrb. Min., 1866, 834–835; Rammelsberg's Min. Chem., 1875, 2d ed., 673; Dana's Min., 1874, 5th ed., 387–388; Gmelin-Kraut, Handb. anorg. Chem., 1897, **2**^{2}, 37, 38; Jsb. Chem., 1866, 943–944; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1866: 127. Chydenius. Ueber das Vorkommen von Thorerde im Euxenit.

Ztschr. Chem., 1867, **10**, 94–95; Bull. soc. chim. Paris, 1866, n. s. **6**, 433–434; Chem. News, 1867, **15**, 50, 51; Chem. Centrbl., 1867, 751;

Rammelsberg's Min. Chem., 1875, 2d ed., 368–370; Dana's Min., 1874, 5th ed., 512, 521, 522; Jsb. Chem., 1866, 946; Roy. Soc. C. Sci. Papers, 1877, **7**, 390.

1866: 128. Hermann. Bemerkungen zu Marignac's Untersuchungen über Niobium und Ilmenium.

Bull. soc. imp. Moscou, 1866, **39**, pte. 1, 598–613; 1867, **40**, pte. 1, 545–553; J. prakt. Chem., 1866, **99**, 21–33; 1866, **102**, 399–405; Jsb. Chem., 1866, 207; 1867, 209–210; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1866: 129. Newlands. The Law of Octaves and the Causes of Numerical Relations among the Atomic Weights.

Proc. Chem. Soc. Lond., 1866, 507, 514; Chem News, 1866, **13**, 113, 130.

1866: 130. Hermann. Fortgesetzte Untersuchungen über Ilmenium und Aeschynit.

Bull. soc. imp. Moscou, 1866, **39**, pte. 2, 291–306; J. prakt. Chem., 1866, **99**, 279–290; Ztschr. Chem., 1867, 124–125; Dana's Min., 1874, 5th ed., 512, 522; Jsb. Chem., 1866, 207–208, 945–946; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1866: 131. Hermann. Ueber die Zusammensetzung des Ilmenorutils.

Bull. soc. imp. Moscou, 1866, **39**, pte. 2, 551–558; J. prakt. Chem., 1867, **100**, 100–105; Bull. soc. chim. Paris, 1867, (2), **8**, 42; Jsb. Chem., 1867, 997; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1867: 132. Marignac. Essais sur la séparation de l'acide niobique et de l'acide titanique. "Analyse de l'aeschynite."

Arch. sci. phys., 1867, **29**, 265–291; J. prakt. Chem., 1867, **102**, 448–454: Ztschr. Chem.; 1867, **10**, 721–726; Bull. soc. chim. Paris, 1867, (2), **8**, 178–181; Ztschr. anal. Chem., 1868, **7**, 104–106; Ann. chim. phys., 1868 [4], **13**, 5–29; Rammelsberg's Min. Chem., 1875, 2d ed., 370; 1886, Ergänz., **1**, 2–3; 1895, Zweites Suppl., 180; Gmelin-Kraut, Handb. anorg. Chemie, 1897, **2**^{2}, 62; Dana's Min., 1874, 5th ed., 793, Suppl.; Jsb. Chem., 1867, 210–215, 833, 998.

1867: 133. Websky. Ueber Sarkopsid und Kochelit, zwei neue Mineral aus Schlesien.

Ztschr. deut. geol. ges., 1867, **20**, 245–257; Jahrb. Min., 1868, 606–608; Rammelsberg's Min. Chem., 1875, 2d ed., 308–309, 366; Dana's Min., 1874, 5th ed., Appendix, 8; Jsb. Chem., 1868, 1013–1014.

1867: 134. Arppe. Minnes-tal öfver Nils Gustaf Nordenskiöld.

Acta Societatis Scientiarum Fennicæ, 1867, **8**, pt. 2, 1–30, with notes, 31–35.

1867: 135. Damour. A letter to Dana, April 20, 1867, pointing out the absence of thoria in tcheffkinite.

(See Dana's Min., 1874, 5th ed., 387–388.)

1868: 136. HERMANN. Fortgesetzte Untersuchungen über die Zusammensetzung des Aeschynits.

Bull. soc. imp. Moscou, 1868, **41**, pte. 2, 54–70; J. prakt. Chem., 1868, **105**, 321–332; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1868: 137. THALÈN. Memoire sur la détermination des longueurs d'onde des raies métalliques.

Nova Acta Soc. Sci. Upsala, 1868, [3], **6**, no. **9**, 1–38, table I; Ann. chim. phys., 1869, (4), **18**, 202–245; Carl, Repertorium Physik, 1870, **6**, 27–61; Kayser. Spectralanalyse, 335; Roy. Soc. C. Sci. Papers, 1879, **8**, 107.

1868: 138. HERMANN. Ueber die Zusammensetzung des Tschewkinits von der Kuste Coromandel.

Bull. soc. imp. Moscou, 1868, **41**, pte. 2, 71–75; J. prakt. Chem., 1868, **105**, 332–335; Rammelsberg's Min. Chem., 1875, 2d ed., 673; Jahrb. Min., 1869, 480; Jsb. Chem., 1868, 1013; Roy. Soc. C. Sci. Pápers, 1877, **7**, 960.

1869: 139. HERMANN. Untersuchungen über die Zusammensetzung des Fergusonits.

Bull. soc. imp. Moscou, 1869, **42**, pte. 1, 411–420; J. prakt. Chem., 1869, **107**, 129–138; Jahrb. Min., 1870, 629; Chem. News, 1869, **20**, 119; Jsb. Chem., 1869, 1230; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1869: 140. EDITORIAL NOTICE. The numerical relations of atoms, new elements predicted.

Chem. News (Amer. reprint), 1869, **4**, 217–218.

1869: 141. RAMMELSBERG. Ueber die Constitution des Tantalits und Colombits.

Ber., 1869, **2**, 87–90; Chem. Centrbl., 1869, 880; Jsb. Chem., 1869, 1229–1230; Roy. Soc. C. Sci. Papers, 1879, **8**, 692.

1869: 142. RAMMELSBERG. Ueber die Constitution der natürlichen Tantal und Niobverbindungen. "Pyrochlor von Miask."

Ber., 1869, **2**, 216–217; Ztschr. Chem., 1869, **12**, 442; Ztschr. deut. geol. Ges., 1869, **21**, 555–564; Chem. Centrbl., 1869, 880; Jsb. Chem., 1869, 1229; Roy. Soc. C. Sci. Papers, 1879, **8**, 692.

1869: 143. MENDELYEEV. Sootnoshenie svoystv s atomnym vyesom elementov.

Zhurnal Russkavo Khimicheskavo Obshchestva (Journal of the Russian Chemical Society), 1869, vol. i, 60–77; J. prakt. Chem., 1869, **106**, 251; Ztschr. Chem., 1869, 405–406; Ber., 1869, **II**, 553; Chem. Centrbl., 1869, 863; Ostwald's Klassiker der Exakten Wissenschaften, Nr. 68, 1895, pp. 18–19, 20–40, Anmerkungen 119–134; Jsb. Chem., 1869, 11; Roy. Soc. C. Sci. Papers, 1879, **8**, 379.

1869: 144. BLUM. Pyrochlor im Kalkstein von Schelingen.

Jahrb. Min., 1869, 732–733.

1869: 145. Hermann. Fortgesetzte Untersuchungen über die Zusammensetzung des Samarskits sowie Bemerkungen über die chem-Constitution der Verbindungen der Niobmetalle.

Bull. soc. imp. Moscou, 1869, **41**, pte. 2, 463–490; J. prakt. Chem., 1869, **107**, 139–159; Chem. News, 1869, **20**, 119; Jsb. Chem., 1869, 1230-1231; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1870: 146. Hermann. Ein einfaches Verfahren der Trennung der Sauren von Niobium und Ilmenium, so wie über die Zusammensetzung des Columbits, Ferroilmenits und Samarskits.

Bull. soc. imp. Moscou., 1870, **43**, pte. 1, 50–71; J. prakt. Chem., 1870, n. s. **2**, 108–124; Ztschr. anal. Chem., 1871, **10**, 344–348; Chem. Centrbl., 1870,551; Am. Chemist, 1871 (2), **1**, 236; Jsb. Chem., 1870, 989-991, 1311, 1312, 1312-1313; Roy. Soc. C. Sci. Papers, 1877, **7**, 960.

1870: 147. Meyer. Die Natur der chemischen Elemente als Function ihrer Atomgewichte.

Ann. chem. (Liebig), 1870, Suppl. **7**, 354–364; Chem. News, 1870, **21**, 252; Chem. Centrbl., 1870, 353; Jsb. Chem., 1870, 9–14; Ostwald's Klassiker der Exakten Wissenschaften, Nr. 68, 1895, 9–17, Anmerkungen 119–134; Roy. Soc. C. Sci. Papers, 1879, **8**, 394.

1870: 148. Blomstrand. Bemerkungen über die Elemente.

Ber., 1870, **3**, 533–539; Jsb. Chem., 1870, 15–18.

1870: 149. Mendelyeev. Estestvennaya sistema elementov i primyenenie yeya k ukazaniyu svoystv nyekotorykh elementov.

Zhurnal Russkavo Khimicheskavo Obshchestva (Journal of the Russian Chemical Society), 1871, part 2; Ann. chem. (Liebig), 1872, Suppl. **8**, 133-229; Ber., 1870, **3**, 990-992; Chem. Centrbl., 1871, 817; Jsb. Chem., 1871, 5–9; Ostwald's Klassiker der Exakten Wissenschaften, Nr. 68, 1895, 41–118, Anmerkungen 119–134; Roy. Soc. C. Sci. Papers, 1879, **8**, 379.

1870: 150. Nordenskiöld. Spridda bidrag till Skandinaviens mineralogi.

Öfv. K. Vet. Akad. förh., 1870, **27**, 549–567; Dana's Min., 1874, 5th ed., 413, and Appendix II, 55; Roy. Soc. C. Sci. Papers, 1879, **8**, 514.

1870: 151. Mendelejew. Über die Stellung des Ceriums im System der Elemente.

Bull. acad. imp. des sciences de St. Petersbourg, 1871, **16**, 45–51, (lu le 24 novembre, 1870); Mél. phys. et chim., 1869–1873, Tome 8, livr. 4, 445–452; Tableau général, Suppl. I, 1871–1881; Publications en langues étrangères, page 18; Chem. News, 1871, **23**, 288; Chem. Centrbl., 1871, 306; Jsb. Chem., 1871, 293-294, 312; Roy. Soc. C. Sci. Papers, 1879, **8**, 379.

1871: 152. Mendelejeff. Zur Frage über das System der Elemente.

Ber., 1871, **4**, 348–352; J. Chem. Soc. Lond., 1871, **9**, 483; Gazzetta chim. italiana, 1871, **1**, 289; Chem. News, 1871, **23**, 252; Chem. Centrbl., 1871, 369; Jsb. Chem., 1871, 9; Roy. Soc. C. Sci. Papers, 1879, **8**, 379.

1871 : 153. Knop. Analyse des Pyrochlors von Schelingen in Kaiserstuhl Gebirge.

Ztschr. deut. geol. ges., 1871, **23**, 656–657, 663; Jahrb. Min., 1872, 534; Gmelin-Kraut, Handb. anorg. Chemie, 1897, **2^2**, 61, 86; Rammelsberg's Min. Chem., 1875, 2d ed., 371–375; 1895, Zweites Suppl., 168–169; Jsb. Chem., 1871, 1165.

1871 : 154. Ludwig. Ueber die Dichtigkeit der Elemente verglichen mit den Dichtigkeiten ihrer oxyde.

Ber., 1871, **4**, 538–546; Bull. soc. chim. Paris, 1871 (**2**), **16**, 62; Chem. Centrbl., 1871, 57; Roy. Soc. C. Sci. Papers, 1879, **8**, 278.

1871 : 155. Knop. Analysis of Pyrochlor.

Bromeis, Handwörterbuch der Chemie, Band 6; Ztschr. deut. geol. ges., 1871, **23**, 656–657; Rammelsberg's Min. Chem., 1875, 2d ed., 371–375; 1895, Zweites Suppl., 168–170.

1871 : 156. Hermann. Fortgesetzte untersuchungen über die Verbindungen von Ilmenium und Niobium so wie über die Zusammensetzung der Niob-mineralien.

Bull. soc. imp. Moscou, 1872, **45**, pte. 1, 148–216, 225–264; J. Chem. Soc. Lond., 1871, **24**, 807; 1872, **25**, 294; J. prakt. Chem., 1871, **111**, 373–427; 1871, **112**, 178–210; Gazzetta chim. italiana, 1871, **1**, 548, 614; 1872, **2**, 236–237; Bull. soc. chim. Paris, 1871 (2), **16**, 256–257; Jsb. Chem., 1871, 287–292; Roy. Soc. C. Sci. Papers, 1877, **7**, 961.

1871 : 157. Rammelsberg. Über die Zusammensetzung der natürlichen Tantal und Niobverbindungen, zunächst des Tantalits, Columbits und Pyrochlors.

Monatsberichte Königl. Akad. d. Wiss. Berlin, 1871, 157–205, 406–431, 584–611; Ann. der Phys. Pogg., 1871, **144**, 56-81, 191–213; Ber., 1871, **4**, 874–876; 1872, **5**, 17–19; Jsb. Chem., 1871, 1163–1164, 1164, 1164–1165, 1165, 1165–1166, 1167; 1872, 1128–1129; Ann. der Phys. Pogg., 1873, **150**, 198–220; Bull. soc. chim. Paris, 1872, **17**, 34-35; J. Chem. Soc. Lond., 1871, **9**, 1013; Institut, 1872, **53**, 302; Ztschr. Kryst, 1890, **16**, 387–396; J. Chem. Soc. Lond., 1872, **10**, 189–204; Gazzetta chim. italiana, 1871, **1**, 723; 1872, **2**, 113, 284–285; Chem. Centrbl., 1871, 374, 511–512, 776, 789–790; 1872, 182; 1874, 72; Rammelsberg's Min. Chem., 1875, 2d ed., 371–375; 1895, Zweites Suppl., 168–169; Gmelin-Kraut, Handb. anorg. Chemie, 1897, **2^2**, 61, 85, 86; Roy. Soc. C. Sci. Papers, 1879, **8**, 693.

1872 : 158. Rammelsberg. Über das Atomgewicht des Urans.

Ber., 1872, **5**, 1003–1006; Gazzetta chim. italiana, 1873, **3**, 59; Chem. Centrbl., 1873, 127; Jsb. Chem., 1872, 257–259; Roy. Soc. C. Sci. Papers, 1879, **8**, 694.

1873 : 159. Clarke. The Constants of Nature, part I, 1873, pp. 272; "Specific Gravity," etc., pp. 28, 62, 100.

Smithsonian Misc. Coll., 1874, **12**; Roy. Soc. C. Sci. Papers, 1891, **9**, 526.

1873: 160. Carlson. Krystallographische Beiträge, 1872, 12.
Ber., 1873, **6**, 1468, corresp.

1873: 161. Mendelyeev. O primyenimosti periodicheskavo zakona k tzeritovym metallam (otvyet Rammelsbergu).
Zhurnal Russkavo Khimicheskavo Obshchestva (Journal of the Russian Chemical Society), 1873; Ann. Chem. (Liebig), 1873, **168**, 45–63; J. Chem. Soc. Lond., 1873, **26**, 1004–1005; Gazzetta chim. italiana, 1873, **3**, 467; 1874, **4**, 138; Ber., 1873, **6**, 558–560; Chem. Centrbl., 1873, 530; Jsb. Chem., 1873, 262–263.

1873–1876: 162. Pettersson. Untersuchungen über die Molekülarvolumina einiger Reihen von isomorphen Salzen.
Nova Acta Soc. Sci. Upsala, 1875, ser. 3, **9**, No. 4, 1–45; 1879, ser. 3, **10**, No. 7, 1–26; Gazzetta chim. italiana, 1875, **5**, 46; 1877, **7**, 266, 271; Ber., 1874, **7**, 477–478; 1876, **9**, 1559–1566, 1676–1679*b*; Chem. Centrbl., 1874, 354; 1876, **7**, 801; Jsb. Chem., 1874, 11; 1876, 18; Roy. Soc. C. Sci. Papers, 1894, **10**, 1047.

1873: 163. Cleve. Bidrag till jordartmetallernas Kemi. Torium.
Bihang till Königl. Sv. Vet. Akad. Handl., 1874, [**2**], No. **6**, 1–26; Öfv. K. Sv. Vet. Akad. förh, 1874, No. **1**, p. 2; Chem. Centrbl., 1875, 274; Ber., 1875, **8**, 128–129*a*; Jsb. rein. chem., 1874, 75; 1875, 53; Gazzetta chim. italiana, 1875, **5**, 154; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **2**^{1}, 881; 1897, **2**^{2}, 274; Roy. Soc. C. Sci. Papers, 1877, **7**, 406.

1873: 164. Radominski. Note sur un phosphate de cérium contenant du fluor.
Bull. soc. chim. Paris, 1874, [2], **21**, 3; Chem. News, 1874, **29**, 113; Gazzetta chim. italiana, 1874, **4**, 573; Ber., 1873, **6**, 1557; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **2**^{1}, 559, 560.

1874: 165. Radominski. Sur un phosphate naturel de cérium renfermant du fluor.
Bull. soc. chim. Paris, 1874 [2], **21**, 49, 293–295, 385–386; Chem. News, 1874, **30**, 21; Gazzetta chim. italiana, 1875, **5**, 168; Roy. Soc. C. Sci. Papers, 1896, **11**, 92.

1874: 166. Radominski. Sur un phosphate de cérium renfermant du fluor.
C. R., 1874, **78**, 764–766; J. Chem. Soc. Lond., 1874, **27**, 663; Jahrb. Min., 1875, 90; Rammelsberg's Min. Chem., 1875, 2d ed., 304–305, 697; 1886, Ergänz., I, 146; 1895, Zweites Suppl., 134–137, 137; Ber., 1874, **7**, 483; Chem., Centrbl., 1874, **5**, 292; Roy. Soc. C. Sci. Papers, 1896, **11**, 92.

1874: 167. Topsöe. Beiträge zur Krystallographischen Kentniss der Salze der sogenannten seltenen Erd-metalle.
Bihang till Köngl. Sv. Vet. Akad. Handl., 1874 [**2**], No. **5**, 9, 10, 32, 33, crystal plates, table II, Fig. 13, p. 10; table 7, Figs. 39–41, pp. 32 and 33; Öfv. K. Sv. Vet. Akad. förh, 1873, No. **9**, p. 1; Bull. soc. chim. Paris, 1874, **22**, 353; Jsb. rein. chem., 1874, 77–78; 1875, 53; Gazzetta chim. italiana, 1875, **5**, 154; Chem. Centrbl., 1874, 786; 1875, 274; Ber., 1875, **8**, 129*a*; Roy. Soc. C. Sci. Papers, 1879, **8**, 1101.

1874 : 168. CLEVE. Sur les combinaisons du thorium.

Bull. soc. chim. Paris, 1874, [**2**], **21**, 115–123; Gazzetta chim. italiana, 1874, **4**, 581–583; Ber., 1874, **7**, 188*a*; J. Chem. Soc. Lond., 1875, **28**, 234–236; Jsb. rein. chem., 1874, 119; Chem. News, 1874, **29**, 133–134; Am. Chemist, 1874, **5**, 140–141; Chem. Centrbl., 1874, 276; Jsb. Chem., 1874, 261–263; Roy. Soc. C. Sci. Papers, 1891, **9**, 539.

1874 : 169. MENDELEJEFF. Ueber die Natur der Elemente.

J. d. russ. phys.-chem. Ges., 1874, January 10–22; Ber., 1874, **7**, 128–129; Chem. Centrbl., 1874, 258; Jsb. Chem., 1874, 9; Roy. Soc. C. Sci. Papers, 1894, **10**, 772.

1874 : 170. ANALYSES of minerals showing thoria.

Dana's Min., 1874, 5th ed.; Monazite, 527, 539, 540; Kochelite, Appendix, 8; Wasite, Suppl., 806; Xenotime? 527–529; Yttrotantalite, 512, 519, 520; Samarskite, 512, 521; Euxenite, 512, 521–522; Aeschynite, 512, 522; Suppl., 793; Mengite, 512, 525–526; Thorite, 395, 396, 413; Pyrochlore, 512, 513; Tscheffkinite, 387–388.

1874 : 171. THORIUM.

Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II**^{1}, 680–694.

1874–1875 : 172. NOTE. Några för Skandinavien nya mineralfynd. "Osmium-iridium och Monazit."

Geol. Fören. Förh., 1874–1875, **2**, 223.

1874 : 173. NILSON. Om selensyrliga salter.

Öfv. K. Sv. Vet. Akad. förh., 1874, **31**, No. **1**, 33–43; Bull. soc. chim. Paris, 1874, **21**, 253–255; Chem. Centrbl., 1874, 306; Gazzetta chim. italiana, 1874, **4**, 597; Jsb. Chem., 1874, 208; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1874 : 174. NILSON. Researches on the salts of selenious acid (fuller account).

Nova Acta Soc. Sci. Upsala, 1875, [**3**], vol. **9**, No. **7**, 1–119; Bull. soc. chim. Paris, 1875, **23**, 260–263, 353–359, 494–500; Chem. Centrbl., 1875, 274, 403; Gazzetta chim. italiana, 1875, **5**, 337, 341–342, 346; Jsb. Chem., 1875, 163–165; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1875 : 175. KNOP. Über Koppit vom Kaiserstuhl.

Jahrb. Min., 1875, 66–69; Jsb. Chem., 1875, 1231–1232.

1875 : 176. WIIK. Försök till en på atomvigten grundad gruppering af de kemiska elementerna.

Acta Societatis Scientiarum Fennicæ, 1875, **10**, 413–437.

1875 : 177. BUNSEN. Spectralanalytische Untersuchungen.

Ann. der Phys. Pogg., 1875, **155**, 230–252, 366–384; Ztschr. anal. Chem., 1876, 68–100; Phil. Mag., 1875, **50**, 417–430, 527–539; Dingl. Pol. J., 1876, **220**, 43–48; Chem. Centrbl., 1875, 561; Graham-Otto Michaelis Lehrbuch Chem., 1881, 5th ed., **II**, 1033; Jsb. Chem., 1875, 95, 121, 128–129; Roy. Soc. C. Sci. Papers, 1891, **9**, 399.

1875: 178. Nilson. Zur Frage über die Valenz der seltenen erdmetalle.

J. Russ. chem. Ges., 1877, **9**, 2, 98; Ber., 1875, **8**, 655–660*a*; Arch. sci. Phys., 1875, **53**, 241–243; Chem. Centrbl., 1875, 449; Gazzetta chim. italiana, 1875, **5**, 264; Jsb. rein. Chem., 1875, 53–54; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1876: 179. Nilson. Zur Frage über die Valenz der seltenen erdmetalle.

Ber., 1876, **9**, 1056–1061*b*; Bull. soc. chim. Paris, 1877, [**2**], **27**, 206–207; Am. Chemist, 1876, **7**, 242, 243; Chem. Centrbl., 1876, 594; Gazzetta chim. italiana, 1876, **6**, 567; Jsb. Chem., 1876, 292–295; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1876: 180. Nilson. Zur Frage über die Valenz der seltenen erdmetalle.

Ber., 1876, **9**, 1142–1148*b*; Am. Chemist, 1876, **7**, 242, 243; Gazzetta chim. italiana, 1877, **7**, 48; Jsb. Chem., 1876, 292–295; Chem. Centrbl., 1876, 691; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1876: 181. Nilson. Untersuchung über Chlorosalze und Doppelnitrite des Platins.

I. Ueber einige Chloroplatinate.—Nova Acta Soc. Sci. Upsala, 1877 [**3**], No. **15**, 1–90, vol. extraordinary; Öfv. K. Sv. Vet. Akad. förh, 1876, **33**, No. 7, 3–10; Bull. soc. chim. Paris, 1877 (2), **27**, 208–209; J. prakt. Chem., 1877 [**2**], **15**, 177, 260–294; Chem. News, 1877, **36**, 183; Gazzetta chim. italiana, 1877, **7**, 385; Chem. Centrbl., 1877, 274, 450; Ber., 1877, **10**, 1725; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

II. Ueber Chloroplatinite.—Nova Acta Soc. Sci. Upsala, 1877 [**3**], No. **15**; Öfv. K. Sv. Vet. Akad. förh, 1876, **33**, No. 7, 11–22; Bull. soc. chim. Paris, 1877, **27**, 210–214; J. prakt. Chem., 1877 [**2**], 15, 260–294; Chem. Centrbl., 1877, 274, 450; J. Chem. Soc. Lond., 1877, **32**, 277–278; Gazzetta chim. italiana, 1877, **7**, 532; 1878, **8**, 160; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

III. Ueber Plato- und Diplatonitrite.—Nova Acta Soc. Sci. Upsala, 1877 [**3**], No. **15**; Öfv. K. Sv. Vet. Akad., 1876, **33**, No. 7, 23–24; Bull. soc. chim. Paris, 1877, **27**, 242–247; J. prakt. Chem., 1877 [**2**], **16**, 241–278; Gazzetta chim. italiana, 1877, **7**, 322; Chem. News, 1876, **34**, 270; 1878, **37**, 31; Chem. Centrbl., 1877, **8**, 98, 291; 1878, 211–212; Ber., 1876, **9**, 1722–1730 (part only); J. Chem. Soc, Lond., 1877, **32**, 115; 1878, **34**, 274–277; Ber., 1877, **10**, 1725; Jsb. Chem., 1876, 295–297; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

IV. Platonitrosylsäure.—Ber., 1877, **10**, 934–936; Chem. Centrbl., 1877, 450; Jsb. Chem., 1877, 310–313.

1876: 182. Clarke. The Constants of Nature, 1876, part 1, 1st Suppl., pp. 62. "Specific Gravity, etc.," pp. 17, 18, 21.

Smithsonian Misc. Coll., 1878, vol. **14**; Roy. Soc. C. Sci. Papers, 1891, **9**, 526.

1876: 183. Clarke. The Constants of Nature, part 2, pp. 58. "Atomic Wt.," p. 20.

Smithsonian Misc. Coll., 1878, vol. **14**; Roy. Soc. C. Sci. Papers, 1891, **9**, 526.

1876: 184. Clarke. The Constants of Nature, 1876, part 3, pp. 58. "Coefficients of Expansion of Thorium" (not determined), p. 16.

Smithsonian Misc. Coll., 1878, vol. **14**; Roy. Soc. C. Sci. Papers, 1891, **9**, 526.

1876: 185. Rammelsberg. Ueber die Atomgewichte der Cer und Yttrium metalle.

Ber., 1876, **9**, 1580–1583*b*; J. Chem. Soc. Lond., 1877, **31**, 282–283; Gazzetta chim. italiana, 1877, **7**, 267; Jsb. Chem., 1876, 240; Roy. Soc. C. Sci. Papers, 1896, **11**, 97.

1877: 186. Rammelsberg. Ueber Nephelin, Monacit und Silberwismuthglanz.

Ztschr. deut. geol. ges., 1877, **29**, 77–81; Jahrb. Min., 1877, 830–831; Jsb. Chem., 1877, 1298; Ztschr. Kryst, 1879, **3**, 101; Rammelsberg's Min. Chem. 1886, Ergänz., I, 168–170; Roy. Soc. C. Sci. Papers, 1896, **11**, 97.

1877: 187. Rammelsberg. Ueber die Zusammensetzung des Aeschynits und Samarskits.

Monatsberichte Köngl. Akad. d. Wiss. Berlin, 1877, 656–673; Ztschr. deut. geol. ges., 1877, **29**, 815–818; Jahrb. Min., 1878, 529; Ztschr. Kryst, 1879, **3**, 101–102; Ber., 1878, **11**, 254*a*; Chem. Centrbl., 1878, 135; Ann. der Phys. Pogg., 1877 [**2**], **2**, 658–665; Dana's Min, 1874, 5th ed., 339–340, 522; Appendix III, 2, 106; Dana's Text Book of Min., 1878, 339–340; Rammelsberg's Min. Chem., 1886, Ergänz., I, 2–3, 199–201; 1895, Zweites Suppl., 180; Jsb. Chem., 1877, 1344–1346; Roy. Soc. C. Sci. Papers, 1896, **11**, 97.

1877: 188. Nordenskiöld. Torit från felsspatsbrotten nära Arendal.

Geol. Fören. Förh., 1876–1877 [**3**], No. **7** (No. **35**), 207, 226–229; Jahrb. Min., 1877, 537–538; Bull. soc. franç. min., 1878, **1**, 51–52; Ztschr. Kryst, 1877, **1**, 383–384; Ber., 1877, **10**, 1727*b*; Rammelsberg's Min. Chem., 1886, Ergänz., I, 230–231; Gmelin-Kraut, Handbuch anorg. Chemie, 1874–1886, **II**^{1}, 881; Chem. Centrbl., 1877, **8**, 776; Jsb. Chem., 1877, 1276.

1877: 189. Delafontaine. Rechérches sur quelques minéraux niobiféres et tantaliféres.

Arch. sci. phys., 1877, **59**, 176–187; J. de pharm., 1878 [4], **28**, 540–542; Am. J. Sci., 1877 [3], **13**, 390; Ztschr. Kryst, 1877, **I**, 503; Chem. Centrbl., 1877, 552; Jsb. Chem., 1877, 251, 288, 1346; Roy. Soc. C. Sci. Papers, 1891, **9**, 666.

1877: 190. Readwin. Notes on some Norwegian minerals.

Min. Mag., 1877, **I**, 229–233; Roy. Soc. C. Sci. Papers, 1896, **11**, 121.

1877: 191. Smith. The earths of the cerium group as found in the North Carolina samarskite.

Am. J. Sci., 1877, (3), **14**, 509; Ztschr. Kryst, 1878, **2**, 194; Roy. Soc. C. Sci. Papers, 1896, **11**, 438.

1877 : 192. ENGSTROM. Undersökning af no̊gra mineral som innehålla sallsynta jordarter.

Inaugural dissertation, Upsala, 1877; Ztschr. Kryst, 1879, **3**, 191–201; Ber., 1877, **10**, 1727; Chem. Centrbl., 1877, 776; Rammelsberg's Min. Chem., 1886, Ergänz., I, 87; 1895, Zweites Suppl., 305–306, 307–308; Bull. soc. franç. min., 1880, **4**, 46; Jsb. Chem., 1879, 1207, 1209–1212, 1212, 1213, 1238.

1877 : 193. KNOP. Dysanalyt, ein pyrochlorartiges mineral.

Ztschr. Kryst, 1877, **1**, 284–296; Min. Mag., 1877, **I**, 186–187; Bull. soc. franç. min., 1878, **1**, 53; Jahrb. Min., 1877, 647; Dana's Min., 1874, 5th ed., Appendix 3, 40; Rammelsberg's Min. Chem., 1886, Ergänz., I, 82; Jsb. Chem., 1877, 1347–1348; Roy. Soc. C. Sci. Papers, 1894, **10**, 421.

1877 : 194. PALJKULL. Eukrasit, ett nytt mineral fran Brevig.

Geol. Fören. förh., 1876–1877, [**3**], No. **12** (No. **40**), 350–352; Ztschr. Kryst, 1878, **2**, 308–309; Min. Petr. Mitth., 1878, (**2**), **1**, 81; Bull. soc. franç. min., 1878, **1**, 11; Jahrb. Min., 1878, 209–210; Jsb. rein. Chem., 1878, 116; Rammelsberg's Min. Chem., 1886, Ergänz., I, 90–91; 1895, Zweites Suppl., 455; Dana's Min., 1874, 5th ed., Appendix III, 43–44; Jsb. Chem., 1878, 1272; Roy. Soc. C. Sci. Papers, 1894, **10**, 982.

1877 : 195. SMITH. Examination of American minerals. No. 6.—Description of Columbic Acid Minerals from new localities in the United States, embracing a reclamation for the restoration of the name Columbium to the element now called Niobium. Description and analyses of Columbite, Samarskite, Euxenite, and Fergusonite, and the new species Hatchettolite, and Rogersite.

Am. J. Sci., 1877, (3), **13**, 359–369; Ann. chim. phys., 1877, [**5**], **12**, 253–264; C. R., 1877, **84**, 1036–1038; Ztschr. Kryst, 1877, **I**, 499–502; Bull. soc. franç. min., 1878, **1**, 52, 142; Jahrb. Min., 1877, 728–729; Min. Mag., 1877, **I**, 189–191; Gazzetta chim. italiana, 1877, **7**, 485; Rammelsberg's Min. Chem., 1886, Ergänz., I, 199–201; Smith, Orig. Researches in Min. and Chem., 193–204; Ber., 1877, **10**, 1177; Chem. Centrbl., 1877, 408, 424, 742; Jsb. Chem., 1877, 288, 1342–1343; Roy. Soc. C. Sci. Papers, 1896, **11**, 438.

1877 : 196. SMITH. On the Earthy Oxides of Samarskite.

Acad. Nat. Sciences, Phila., Proc. 1877, **3°**, **7**, 194.

1878 : 197. SMITH. A short account of the Nature of the Oxide of the New Element, Mosandrum.

Amer. Assoc. for Adv. of Sci., Proc. 1878, **27**, 143–147; Smith, Original researches, 325–329; Roy. Soc. C. Sci. Papers, 1896, **11**, 438.

1878 : 198. SMITH. Note sur une nouvelle terre du groupe du cérium et remarques sur une méthode d'analyse des columbates naturels. Le mosandrum, un nouvel elément.

C. R., 1878, **87**, 146–148; Arch. sci. phys., 1878, **63**, 165–172; Phil. Mag., 1878 (5), **6**, 238–240; Am. J. Sci., 1878, **16**, 384; Chem. News, 1878, **38**, 61; La correspondance scientifique, 1878, July 30; Chem. Centrbl., 1878, 642; Jsb. Chem., 1878, 262; Roy. Soc. C. Sci. Papers, 1896, **11**, 438.

1878: 199. Delafontaine. Sur le mosandrum de M. Lawrence Smith.

C. R., 1878, **87**, 600–602; Chem. Centrbl, 1878, 770–771; Jsb. Chem., 1878, 262; Roy. Soc. C. Sci. Papers, 1891, **9**, 666.

1878: 200. Delafontaine. Sur le terbium et ses composés et sur l'existence probable d'un nouveau métal dans la samarskite de la Caroline du Nord. 1° memoire.

Ann. chim. phys., 1878, [5], **14**, 238–247; Arch. sci. phys., 1878, **61**, 273–282; Chem. Centrbl., 1878, **9**, 594–595; Jsb. Chem., 1878, 255–257; Roy. Soc. C. Sci. Papers, 1891, **9**, 666.

1878: 201. Soret. Rechérches sur l'absorption des rayons ultra-violets par diverses substances. 1ᵉ et 2ᵉ memoire.

Arch. sci. phys., 1877, [2], **60**, 298–300; 1878, [2], **61**, 322–359; 1879, [2], **63**, 89–112; C. R., 1878, **86**, 708–711, 1062–1064; Beibl. Ann. der Phys., 1878, **2**, 30–31, 235, 302, 347, 410–411, 573; 1879, **3**, 196–197: Chem. Centrbl., 1878, 418; Jsb. Chem., 1878, 181, 181–182.

1878: 202. Nordenskiöld (analyses by Lindström). Cleveit, ett nytt yttro-uran mineral från Garta felsspats-brott nära Arendal.

Geol. Fören. Förh., 1878–1879, Bd. **4**, No. **1**, (**43**), 28–32; Jahrb. Min., 1878, 406–407; Ztschr. Kryst, 1879, (**3**), 201–202; Bull. soc. franç. min., 1878, **1**, 10; Min. Petr. Mitth., 1878, (**2**), **1**, 289–290; Rammelsberg's Min. Chem., 1886, Ergänz., I, 247–248; 1895, Zweites Suppl., 67–74; Dana's Min., 1874, 5th ed., Appendix III, 27–28; Jsb. Chem., 1878, 1216–1217; Roy. Soc. C. Sci. Papers, 1894, **10**, 937.

1878: 203. Blomstrand. Titanater från Småland jemte några anmärkningar rörande dylika mineraliers undersökning.

Fysiograf. Sallsk. i Lund. Minneskrift, 1878, **38**, No. 3, 1–41, in sep. abdr.; Geol. Fören. Förh, 1878–1879, **4**, 359; Öfv. K. Sv. Vet. Akad. förh, 1879, **36**, No. 2, 48; Ztschr. Kryst, 1880, **4**, 520–525; Jsb. rein. Chem., 1879, 100; Ber., 1879, **12**, 1721–1723*b*; Min. Petr. Mitth., 1880, [2], **3**, 453–454; Chem. Centrbl., 1879, 663; Jsb. Chem., 1879, 1237; 1880, 1477, 1478.

1878: 204. Damour. Sur la Freyalite.

Bull. soc. franç. min., 1878, **1**, 33–35; Ztschr. Kryst, 1879, **3**, 637–638; Min. Petr. Mitth., 1879, (2), **2**, 437–438; Dana's Min., 1874, 5th ed., Appendix III, 48; Rammelsberg's Min. Chem., 1886, Ergänz., I, 106; Jsb. Chem., 1879, 1237.

1878: 205. Smith. Note au sujet de l'élément appelé mosandrum.

C. R., 1878, **87**, 831–834; Smith, Orig. Researches, 330–333; Jsb. Chem., 1878, 262; Roy. Soc. C. Sci. Papers, 1896, **11**, 438.

1878: 206. DELAFONTAINE. Sur le décipium, métal nouveau de la samarskite.

C. R., 1878, **87**, 632–634; Chem. News, 1878, **38**, 223; J. de pharm., 1878, **28**, 540–542; Jsb. Chem., 1878, 259; Beibl. Ann. der Phys., 1879, **3**, 197; Chem. Centrbl., 1878, **9**, 801–802; Ber., 1879, **12**, 364*a*; Roy. Soc. C. Sci. Papers, 1891, **9**, 666.

1878: 207. DELAFONTAINE. Le didyme de la cérite est probablement un mélange de plusieurs corps.

C. R., 1878, **87**, 634–635; Chem. News, 1878, **38**, 253; Beibl. Ann. der Phys., 1879, **3**, 197–198; Chem. Centrbl., 1878, 802; Jsb. Chem., 1878, 259–260.

1879: 208. NILSON. Om Scandium, en ny jordmetall.

Öfv. K. Sv. Vet. Akad. Förh., 1879, **36**, No. **3**, 2, 47–51; C. R., 1879, **88**, 645–648; Beibl. Ann. der Phys., 1879, **3**, 297, 359, 377, 766; Chem. Centrbl., 1879, **10**, 355–356; Ber., 1879, **12**, 554–557; Jsb. Chem., 1879, 242–244; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1879: 209. SORET. Sur la fluorescence des sels des métaux terreux.

C. R., 1879, 1077–1079; Ber., 1879, 2078; Chem. News, 1879, **39**, 262; Beibl. Ann. der Phys., 1879, **3**, 620; Jsb. Chem., 1879, 149–150.

1879: 210. RUDOLPH HERMANN. Nekrolog.

Bull. soc. imp. Moscou, 1879, **54**, No. **3**, 159–182; Roy. Soc. C. Sci. Papers, 1894, **10**, 204.

1879: 211. CARNELLEY. Influence of Atomic Weights.

Phil. Mag., 1879, **8**, 305–324, 368–381, 461–476; Chem. News, 1879, **39**, 281–282; Chem. Centrbl., 1879, 593; Jsb. Chem., 1879, 17–18; Roy. Soc. C. Sci. Papers, 1891, **9**, 447.

1880: 212. CARNELLEY. Mendelejeff's periodic law and the magnetic properties of the elements.

J. Chem. Soc. Lond., 1880, **38**, 206; Chem. News, 1879, **40**, 183–184; Chem. Centrbl., 1879, **10**, 769; Ber., 1879, **12**, 1958–1961; Jsb. Chem., 1879, 18–19; Roy. Soc. C. Sci. Papers, 1891, **9**, 447.

1880: 213. NILSON. Om ytterbiums atomvigt.

Öfv. K. Sv. Vet. Akad. Förh., 1880, **37**, No. **6**, 2, 3–13; C. R., 1880, **91**, 56–59; Ber., 1880, **13**, 1430–1438*b*; Chem. Centrbl., 1880, 563; Beibl. Ann. der Phys., 1880, **4**, 573, 626, 633; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1880: 214. BECKER. The Constants of Nature, 1880, part 4, Atomic Weight Determinations. A Digest of the Investigations published since 1814, pp. 152.

Smithsonian Misc. Coll., 1883, **27**; "Thorium," 120–122.

1880: 215. CLARKE. Specific Gravity Determinations.

Am. Chem. J., 1880–1881, **2**, 174–175; Ber., 1879, **12**, 1398–1399; Jsb. Chem., 1879, 30–31; Roy. Soc. C. Sci. Papers, 1891, **9**, 526.

1880: 216. Delafontaine. Sur le décipium et ses principaux composés.

Arch. sci. phys., 1880, **3**, 250–260; Jsb. Chem., 1880, 298–299; Roy. Soc. C. Sci. Papers, 1891, **9**, 666.

1880: 217. Soret. Recherches sur l'absorption des rayons ultra-violets par diverses substances (3d memoire).

Arch. sci. phys., 1880 [**3**], **4**, 261–292, 377–380; Beibl. Ann. der Phys., 1880, **4**, 694, 845; Jsb. Chem., 1880, 214.

1880: 218. Nilson and Pettersson. Om de sällsynta jordarternas och deras sulfats molekylarvärme och-volym.

Öfv. K. Sv. Vet. Akad. Förh., 1880, **37**, No. **1**, 1; No. **6**, 2, 45–52; Roy. Soc. Lond. Proc., 1881, **31**, 46–51; J. Chem. Soc. Lond., 1880, **38**, 838–839; C. R., 1880, **91**, 232–235; Chem. News, 1880, **42**, 119–120; 1881, **43**, 17–19; Les Mondes, 1883 [**3**], 414; Beibl. Ann. der Phys., 1880, **4**, 574, 626, 635–636; Chem. Centrbl., 1880, **11**, 612; Ber., 1880, **13**, 1459–1465; 1881, **14**, 354; Jsb. Chem., 1880, 237–238; Roy. Soc. C. Sci. Papers, 1894, **10**, 930, 1048.

1880: 219. Meyer. Zur Geschichte der periodischen atomistik.

Ber., 1880, **13**, 259–265, 2043–2044; Chem. News, 1880, **41**, 203; J. Chem. Soc. Lond., 1881, **40**, 138; Chem. Centrbl., 1880, 194; Jsb. Chem., 1880, 3.

1880: 220. Mendelejeew. La loi périodique des éléments chimiques.

Monit. Sci. Quesneville, 1879, **21**, 689, 691–737; Chem. News, 1879, **40**, 231–232, 243–244, 255–256, 267–268, 279–280, 291–292, 303–304; Chem. News, 1880, **41**, 2–3, 27–28, 39–40, 49–50, 61–62, 71–72, 83–84, 93–94, 106–108, 113–114, 125–126; J. Chem. Soc. Lond., 1881, **40**, 138; Chem. Centrbl., 1880, 801; Beibl. Ann. der Phys., 1881, **5**, 4; Ber., 1880, **13**, 1796–1804; Jsb. Chem., 1880, 3–4; Roy. Soc. C. Sci. Papers, 1894, **10**, 772.

1880: 221. Collier. Analysis of a mineral resembling Thorite, Uranothorite.

J. Am. Chem. Soc., 1880, **2**, 73–75; C. R., 1882, **95**, 784–786; Am. J. Sci., 1881, [**3**], **21**, 161; Ztschr. Kryst., 1881, **5**, 514–515; Ber., 1880, **13**, 1740 Ref.; Jahrb. Min., 1881, **2**, 175 Ref.; Bull. soc. franç. min., 1882, **5**, 117; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II**^{1}, 881; Dana's Min., 1874, 5th ed., Appendix III, 121–122; Rammelsberg's Min. Chem., 1886, Ergänz., I, 230–231; Jsb. Chem., 1881, 1361

1881: 222. Mendelyeev. Soobshchenie po povodu mnogikh vnov otkrytykh Marinyakom Delafontenom Kleve i Nilsonom tzeritovykh i gadolinitorykh metallov.

Zhurnal Russkavo Khimicheskavo Obshchestva (Journal of the Russian Chemical Society, 1881, vol. 13, Chemical Div. 1st protokol, pp. 517–520); Bull. soc. chim. Paris, 1884, [**2**], **38**, 139–142; Ber., 1881, **14**, 2821–2823; Chem. Centrbl., 1882, 209–210; Jsb. Chem., 1881, 8; 1882, 287; Beibl. Ann. der Phys., 1881, **6**, 315; 1883, **7**, 419; Roy. Soc. C. Sci. Papers, 1894, **10**, 772.

1881: 223. Lorenzen. Undersögelse af nogle Mineralier i sodalith, syeniten fra Julianehaabs-Distrikt. Meddelelser om Grönland-udgiven af Commissionen for Ledelsen af de geologiske og geographiske Undersögelser i. Grönland. Andet Hefte 1881, 45–79, Kjøebenhavn.

Jahrb. Min., 1883, **58**, **2**, 18–21; J. Chem. Soc. Lond., 1883, **44**, 960–961; Ztschr. Kryst., 1883, **7**, 605–611; 1890, **16**, 494, 495; Min. Mag., 1882–1884, **23**, **5**, 49–70; Rammelsberg's Min. Chem., 1886, Ergänz., I, 223; 1895, Zweites Suppl., 455; Roy. Soc. C. Sci. Papers, 1894, **10**, 632.

1881: 224. Brögger. Nogle bemoerkninger om pegmatit gangene ved Moss og deres mineraler.

Geol. Fören. Förh., 1881, Bd. **5**, No. **8**, (**64**), 326–376; Jahrb. Min., 1882, **1**, 349–352 Ref.; 1883, **1**, 80–81; Ztschr. Kryst., 1885, **10**, 494–496; Min. Mag., 1882–1884, **5**, 112; Rammelsberg's Min. Chem., 1886, Ergänz., I, 7–8; 1895, Zweites Suppl., 167; Dana's Min., 1874, 5th ed., Appendix III, 7; Jsb. Chem., 1883, 1924; Roy. Soc. C. Sci. Papers, 1891, **9**, 363.

1881: 225. Renard. Notice sur la monazite des carrières de Nil-St. Vincent.

Bull. de l'acad. Royale de Belgique, 1881, [**3**], t. **2**, No. **8**, 128–133; Jahrb. Min., 1883, **57**, **1**, 183, Ref.; Ztschr. Kryst., 1882, **6**, 544; Roy. Soc. C. Sci. Papers, 1896, **11**, 144.

1881: 226. Rammelsberg. Schwefelsaure Thorerde.

Rammelsberg's Handb. d. Kryst. Phys. Chem., 1881, **1**, 445.

1881: 227. Brauner. On the atomic weight of Beryllium.

Phil. Mag., 1881, [**5**], **11**, 65–71; Chem. Centrbl., 1881, 298; Ber., 1881, **14**, 53–58; J. Chem. Soc. Lond., 1881, 224; Jsb. Chem., 1881, 4; Roy. Soc. C. Sci. Papers, 1891, **9**, 336.

1881: 228. Brauner and Watts. Ueber die specifischen Volumina der Oxyde.

Phil. Mag., 1881, **11**, 60–64; Ber., 1881, **14**, 48–53; Chem. Centrbl., 1881, 225; Jsb. Chem., 1881, 35; Roy. Soc. C. Sci. Papers, 1891, **9**, 336.

1881: 229. Hidden. Notes on Mineral Localities in North Carolina. I.

Am. J. Sci., 1881, [**3**], **22**, 21–25; (continuation), 1882, [**3**], **24**, 372–374; Jahrb. Min., 1882, **2**, 361 Ref.; 1883, **2**, 148–149; Ztschr. Kryst., 1882, **6**, 517; 1884, **9**, 79–80; Chem. News, 1882, **46**, 205; Jsb. Chem., 1881, 1357, 1362, 1375, 1407; 1882, 1573, 1574; Roy. Soc. C. Sci. Papers, 1894, **10**, 225.

1881: 230. Crookes. Discontinuous phosphorescent spectra in high vacua.

Roy. Soc. Lond. Proc., 1881, **32**, 206–213; Ann. chim. phys., 1881, [**5**], **23**, 555–565; Chem. News, 1881, **43**, 237–239; C. R., 1881, **92**, 1281–1283; Nature, 1881, **24**, 89–91; Ber., 1881, **14**, 1696–1697; Jsb. Chem., 1881, 130–132; Roy. Soc. C. Sci. Papers, 1891, **9**, 608.

1881: 231. Lindstrom. Analys af Thorit från Hitterö.

Geol. Fören. Förh., 1880–1881, Bd. **5**, No. **11**, (**67**), 454, 500; Ztschr. Kryst., 1882, **6**, 513; J. Chem. Soc. Lond., 1882, **42**, 290; Jahrb. Min., 1882, **1**, 29, Ref.; Min. Mag., 1882–1884, **5**, 111; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II**^{1}, 881; Rammelsberg's Min. Chem., 1886, Ergänz., I, 230–231; Jsb. Chem., 1882, 1528.

1881: 232. Gerber. Relations entre les poids atomiques des éléments.

Les Mondes, 1881, **54**, 240–245; Chem. News, 1881, **43**, 242–243; Chem. Centrbl., 1881, 417; Jsb. Chem., 1881, 7, 8; Roy. Soc. C. Sci. Papers, 1891, **9**, 988.

1881: 233. Clarke. An abstract of the results obtained in a recalculation of the atomic weights.

Am. Chem. J., 1881–1882, **3**, 263–275; Phil. Mag., 1881, [**5**], **12**, 101–112; Jsb. Chem., 1881, 6, 7; Beibl. Ann. der Phys., 1881, 914; Chem. Centrbl., 1883, 200–201; Roy. Soc. C. Sci. Papers, 1891, **9**, 526.

1881: 234. Brauner. Beitrag zur Chemie der Ceritmetalle. Erste Abtheilung. Experimenteller Theil.

Sitzungsber. Akad. d. Wien, math-naturw. Cl., 1881, (**2** Abth.), **84**, 1165–1224; Monatsh. Chem., 1882, **3**, 1–60; Anzeiger der Kaiserl. Akademie der Wiss. Wien, October 6, 1881, and June 9, 1882, **19**, 14–19, 131–132, 136, 184–185; J. Chem. Soc. Lond., 1882, **41**, 68–79; Ber., 1882, **15**, 109–115; Chem. Centrbl., 1882, **13**, 150–151, 229; Beibl. Ann. der Phys., 1882, **6**, 260, 304, 407, 418–420; Chem. News, 1882, **46**, 249–250; Bull. soc. chim. Paris, 1882, **38**, 176–178; Monit. sci. Quesneville, 1882, (**3**), **12**, 595–610, 610–625; Tagebl. der Naturforscher Verein zu Salzburg, 1881, Sept. 21, 48–49; C. R., 1882, **94**, 1718–1719; Monit. sci. Quesneville, 1882, [**3**], **12**, 794–795; Beibl. Ann. der Phys., 1882, **6**, 604, 722; Ber., 1882, **15**, 2231*b*; J. Chem. Soc. Lond., 1883, **44**, 18; Chem. Centrbl., 1882, **13**, 616; Chem. News, 1882, **46**, 16–17; Jsb. Chem., 1882, 282–285; Roy. Soc. C. Sci. Papers, 1891, **9**, 336.

1881: 235. Watt. Mineral from Vegetable Creek, New South Wales.

Annual Report of the Dept. of Mines, Sydney, N. S. Wales, 1881, 26–27.

1882: 236. Brauner. Beitrag zur Chemie der Ceritmetalle, II.

Sitzungsber. Akad. d. Wien, math-naturw. Cl., 1882, (**2** Abth.), **86**, 168–185; Monatsh. Chem., 1882, **3**, 486–503; J. Chem. Soc. Lond., 1883, **43**, 278–289; Am. Chem. J., 1883, **5**, 300; Beibl. Ann. der Phys., 1882, **6**, 822, 823; 1883, **7**, 214, 634; 1883, **7**, 44, (Lit. Uebers.); Ber., 1882, **15**, 2357*b*; 1883, 1860–1861; Chem. Centrbl., 1882, **13**, 616–617; 1883, **14**, 291, 586; Chem. News, 1883, **47**, 175; Jsb. Chem., 1882, 285–286; 1883, 354–357; Roy. Soc. C. Sci. Papers, 1891, **9**, 336.

1881–1882: 237. Weibull. Om Zirkonium och dess föreningar.

Acta Universitatis, Lund., 1881–1882, **18**, [**2**], **5**, 1–75; Ber., 1887, 1394–1396; Jsb. Chem., 1887, 553.

1881: 238. Brauner. Über den Begriff des periodischen Gesetztes der Elemente.

Tagebl. d. naturf.-Ver. zu Salzburg, 1881, 49–50; Chem. Centrbl., 1882, **13**, 84–85.

1882: 239. Brauner. Ueber die Stellung der seltenen Erdmetalle im periodischen System der Elemente.

Ber., 1882, **15**, 115–121; Bull. soc. chim. Paris, 1882, **2**, 178; Chem. Centrbl., 1882, 201; Beibl. Ann. der Phys., 1882, **6**, 407; Jsb. Chem., 1882, 21; Roy. Soc. C. Sci. Papers, 1891, **9**, 336.

1882: 240. Roscoe. A study of some of the earth metals contained in samarskite.

J. Chem. Soc. Lond., 1882, **41**, 277–282; Monit. sci. Quesneville, 1883, [**3**], **13**, 246–247; Ber., 1882, **15**, 1274–1280; Chem. Centrbl., 1882, 341, 465; J. de pharm., 1882, [**5**], **6**, 515–516; Chem. News, 1882, **45**, 184; Ztschr. Kryst, 1884, **9**, 105; Jsb. Chem., 1883, 361.

1882: 241. König. Notes on monazite (absence of thorium mentioned).

Proc. Acad. Nat. Sci., Phila., 1882, 15–16; Jahrb. Min., 1885, **61**, **1**, 14, Ref.; Ztschr. Kryst., 1883, **7**, 423; Jsb. Chem., 1882, 1541–1542; 1883, 1862; Roy. Soc. C. Sci. Papers, 1894, **10**, 439.

1882: 242. Dunnington. Columbite, orthite, and monazite from Amelia Co., Va.

Am. Chem. J., 1882–1883, **4**, 138–140; Jahrb. Min., 1885, **61**, **1**, 6, 14 Ref.; Ztschr. Kryst., 1883, **7**, 423; J. Chem. Soc. Lond., 1882, **42**, 1175; Chem. Centrbl., 1882, 643–644; Rammelsberg's Min. Chem., 1886, Ergänz., 1, 168–170; Jsb. Chem., 1883, 1862; Roy. Soc. C. Sci. Papers, 1891, **9**, 754.

1882: 243. Woitschach. Das Granitgebirge von Königshain in der Oberlausitz mit besonderer Berucksichtigung der darin vorkommenden Mineralien.

Abhandl. der naturf. Gesellsch. zu Gorlitz, 1881, **17**, 141–197; Ztschr. Kryst., 1883, **7**, 82–88; Jsb. Chem., 1882, 1582–1583.

1882: 244. Penfield. On the Occurrence and Composition of some American varieties of Monazite.

Am. J. Sci., 1882 [**3**], **24**, 250–254; Ztschr. Kryst., 1883, **7**, 366–370; Jahrb. Min., 1883, **58**, **2**, 165–166 Ref.; Bull. soc. franç. min., 1883, **6**, 70; Chem. Centrbl., 1882, 816; Jsb. Chem., 1883, 1861–1862; Rammelsberg's Min. Chem., 1886, Ergänz., I, 168–170; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 134–137; Roy. Soc. C. Sci. Papers, 1894, **10**, 1020.

1882: 245. Nilson. Undersökningar öfver thorit och thoriums eqvivalent.

Öfv. K. Sv. Vet. Akad. Förh., 1882, **39**, No. **7**, 1, 3–24; Ber., 1882, **15**, 2519–2537*b*, 2906; Ann. chim. phys., 1883, [**5**], **30**, 563–567; C. R., 1882, **95**, 729–730; Am. Chem. J., 1882–1883, **4**, 405–406; Am. J. Sci., 1883, [**3**], **25**, 146–147; Beibl. Ann. der Phys., 1882, **6**, 901;

1883, **7**, 5, Lit. Uebers.; Chem. Centrbl., 1882, 772–773; 1884, 166; Monit. sci. Quesneville, 1882, [3], **12**, 1209; 1883, [**3**], **13**, 235–239; Chem. News, 1882, **46**, 232; Ztschr. anal. Chem., 1883, **22**, 307–308; Tidsskrift for Physik og Kemi., 1882, **3**, 332; Jsb. Chem., 1882, 352–354; 1883, 46, 409; Gmelin-Kraut, Handb. anorg. Chemie, 1874–1886, **II**¹, 881; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1882: 246. Nilson. Om metalliskt thorium.

Öfv. K. Sv. Vet. Akad. Förh., 1882, **39**, No. **7**, 1, 25–36; Ber., 1882, **15**, 2537–2547*b*, 2906; C. R., 1882, **95**, 727–729; Ann. chim. phys., 1883, [**5**], **30**, 568–573; Am. J. Sci., 1883, [**3**], **25**, 146; Chem. Centrbl., 1882, 772; 1884, 166; Monit. sci. Quesneville, 1883, 239–244; Chem. News, 1882, **46**, 232; Chem. Ztg., 1882, 1318; Beibl. Ann. der Phys., 1882, **6**, 900; 1883, **7**, 5, Lit. Uebers.; Rev. cours. scientif., 1883, [**3**], **4**, 604; 1883, [**3**], **5**, 185, 544; Cosmos les Mondes, 1883, **61**, 462; Pop. Sci. News, 1883, 26; J. Am. Chem. Soc., 1883, **5**, 118; Tidsskrift for Physik og Kemi., 1882, **3**, 332; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1882: 247. Nilson. Untersuchungen über Thorit und über das Aequivalent des Thoriums. 1. Ueber Thorit von Arendal.

Ber., 1882, **15**, 2519–2527*b*, 2906; C. R., 1882, **95**, 784–786; Chem. Centrbl., 1882, 819; 1884, 319; Ann. chim. phys., 1883, [**5**], **30**, 429–432; Science, 1883, 45; Ztschr. Kryst., 1884, **9**, 223–224; Tidsskrift for Physik og Kemi., 1882, **3**, 332; Jahrb. Min., 1884, **59**, 8, Ref.; Jsb. Chem., 1882, 1528; Roy. Soc. C. Sci. Papers, 1894, **10**, 929.

1882: 248. de Boisbaudran. Séparation du gallium.

C. R., 1882, **94**, 1154–1155, 1227–1229, 1439–1442, 1625–1629; 1882, **95**, 157–160, 410–413, 503–506, 703–706, 1192–1194, 1332–1334; 1884, **99**, 526; Chem. Centrbl., 1882, **13**, 418–419, 519, 606, 646, 727, 826; 1883, **14**, 36, 130; Ber., 1882, **15**, 1435, 1435–1436, 1571, 2228, 2390, 2616, 2906; 1883, 87, 222–223; 1884, 508 R.; Chem. News, 1882, **45**, 207–208, 228–229; 1882, **46**, 3–4, 69–70, 152–153, 165–166, 211; 1883, **47**, 3–4, 16–17; Jsb. Chem., 1882, 1294–1296; 1884, 1602; Roy. Soc. C. Sci. Papers, 1891, **10**, 544.

1882: 249. Clarke. The Constants of Nature, pt. V. A recalculation of the Atomic Weights, 1882, pp. 293.

Smithsonian Misc. Coll., 1883, **27**; Chem. News, 1883, **47**, 275–277; 1883, **48**, 3–4, 17–19, 32–34, 42–43, 52–54, 68–69, 78–80, 91–93, 103–105, 115–116, 158–159, 165–166, 177–179, 198–199, 210–211, 221–222, 231–232, 258–259, 263–264, 275–276, 289–290; 1884, **49**, 4–6, 19–20, 32–33, 42–44, 54–55, 64–65, 76–77, 89–90, 99–101, 112–113, 132–133, 145–146, 151–155, 164–165, 174–175, 186, 197–198, 219–220, 231–233, 239–240, 249–251, 260–262, 273–274, 282–284; 1884, **50**, 7–9, 21–22, 28–30, 39–40, 51–52, 62–63, 74–75, 87–90; Chem. Ztg., 1883, **7**, **2**, 854, 1094, 1161, 1196–1197, 1294, 1328–1329, 1591, 1691; 1884, **8**, **1**, 21, 91, 154, 227, 264, 340, 453, 492, 522, 595–596, 669, 713–714, 824, 859, 898, 930; 1884, **8**, **2**, 1038, 1141, 1288–1289, 1358; Ztschr. anal. Chem., 1883, **22**, 302–306; Jsb. Chem., 1883, 33; 1884, 48; Roy. Soc. C. Sci. Papers, 1891, **9**, 526.

1882: 250. Dixon. Monazite analysis.

Liversidge, The Minerals from New South Wales, 1882, 137, 2d ed. Ztschr. Kryst, 1884, **8**, 87; Rammelsberg's Min. Chem., 1886, Ergänz. I, 168–169; Jsb. Chem., 1883, 1862–1863.

1882: 251. Hartley. The Analysis of Rhabdophane, a new British mineral.

Chem. Soc. Lond. Trans., 1882, **41**, 210–220; Chem. Centrbl., 1882, 151–152, 516; Chem. News, 1882, **45**, 40; Jsb. Chem., 1882, 1542; Roy. Soc. C. Sci. Papers, 1894, **10**, 151.

1883: 252. Fontaine. Notes on the occurrence of certain minerals in Amelia County, Va.

Am. J. Sci., 1883, **25**, 330–339; Jahrb. Min., 1885, **61**, **I**, 4–6 Ref.; J. Chem. Soc. Lond., 1883, **44**, 959–960; Jsb. Chem., 1883, 1880; Roy. Soc. C. Sci. Papers, 1891, **9**, 893.

1883: 253. Demarçay. Sur le sulfate de thorium.

C. R., 1883, **96**, 1859–1862; Ber., 1883, **16**, 2282*b*; Bull. soc. chim. Paris, 1883 [**2**], **40**, 98; Chem. News, 1883, **48**, 49–50; Rev. cours. scientif., 1883, [**3**], **6**, 27; Chem. Centrbl., 1883, 501; Jsb. Chem., 1883, 409–410; Roy. Soc. C. Sci. Papers, 1891, **9**, 673.

1883: 254. Brögger. Über Krystalle von Thorium.

Bihang. till. K. Sv. Vet. Akad. Förh., 1883-1884, **8**, No. **5**, 1–8; Öfv. K. Sv. Vet. Akad. Förh., 1882, No. **10**, 1; 1883, No. **1**, 2; Ztschr. Kryst, 1883, **7**, 442–446; Jahrb. Min., 1886, **63**, 25–26 Ref.; Bull. soc. franç. min., 1883, **6**, 71.

1883: 255. Nilson. Om thoriums specifika värme och atomvärde.

Öfv. K. Sv. Vet. Akad. Förh., 1883, **40**, No. **1**, 2, 3–15; Ber., 1883, **16**, 153–163*a*; 1883, **16**, 568*a* Ref.; C. R., 1883, **96**, 346–348; Chem. News, 1883, **47**, 122–123; 1883, **48**, 105–106; Beibl. Ann. der Phys., 1883, **7**, 358; 1883, **7**, 10, 13, 21, 72, Lit. Uebers; 1884, **8**, 91, Lit. Uebers; Science, 1883, 341; Chem. Centrbl., 1883, 171; Chem. Ztg., 1883, **7**, **1**, 264; Rev. cours. scientif., 1883, [**3**], **5**, 185; Jsb. Chem., 1883, 118, 409; Roy. Soc. C. Sci. Papers, 1894, **10**, 929–930.

1883: 256. Wallroth. Om fosforsalts inverkan på metalloxider.

Öfv. K. Sv. Vet. Akad. Förh., 1883, **40**, No. **3**, 21–45; Bull. soc. chim. Paris, 1883 [**2**], **39**, 316–322; Ber., 1883, **16**, 3059–3060; Chem. Centrbl., 1883, **14**, 290; Jsb. Chem., 1883, **1**, 318–319; Roy. Soc. C. Sci Papers, 1896, **11**, 743.

1883: 257. Editorial. Das natürliche System der Elemente.

Jahrb. Erfind., 1883, **19**, 263.

1883: 258. Meyer and Seubert. Die Atomgewichte der Elemente aus den originalzahlen neu berechnet, Leipzig, 1883, pp. 245.

Beibl. Ann. der Phys. Pogg., 1883, **7**, 630–632; Chem. News, 1883, **48**, 211–212; Chem. Ztg., 1883, **7**, **1**, 425–426; 1883, **7**, **2**, 1328–1329; Ztschr. anal. chem., 1883, **22**, 639–640.

1883: 259. SMITH. Methods of analyzing samarskite and the other columbates containing earthy oxides by the agency of fluorhydric acid and of dissolving columbite and tantalite by the same acid. On the separation of thoria. Quantitative estimation of didymium oxide in its mixtures with other earthy oxides.

Chem. News, 1883, **48**, 13–15, 29–31; Am. Chem. J., 1883, **5**, 44–51, 73–81; Ber., 1883, **16**, 1885–1886, 1886, 1886–1887; 1885, 515–516 R.; Chem. Centrbl., 1883, 629; Chem. News, 1885, **51**, 289–291, 304–307; Jbs. Chem., 1883, 1561–1563; 1885, 1931–1933; Smith, Orig. Researches in Min. and Chem., 1883, 350–366, edited by Dr. J. B. Marvin, Louisville, Ky.; Rey. Soc. C. Sci. Papers, 1896, **11**, 439.

1883: 260. HAUSHOFER. Beiträge zur mikroscopischen Analyse.

Sitzber. bäyr. Akad. Wiss., 1883, [**3**], **13**, 436–449; Jahrb. Min., 1885, **61**, **1**, 180 Ref.; Ber., 1884, **17**, 182 Ref.; Ztschr. Kryst, 1885–1886, **11**, 165–167; Jsb. Chem., 1884, 1551; Roy. Soc. C. Sci. Papers, 1894, **10**, 162.

1883: 261. DE BOISBAUDRAN. Séparation du gallium.

C. R., 1883, **96**, 152–154, 1696–1698, 1838–1840; 1883, **97**, 66–67, 142–144, 295–297, 521–522, 623–625, 730–732, 1463–1465; 1884, **98**, 711–712, 781–782; Chem. Centrbl., 1883, **14**, 130–131, 501, 587, 678, 753; 1884, **15**, 86, 419, 697; Ber., 1883, 579; 1886, 2320, 2531, 2691; 1884, 55, 216–217, 217 Ref.; Chem. News, 1883, **47**, 100–101, 299; 1883, **48**, 15, 50, 62–63, 86–87, 148, 164, 169, 197, 203; 1884, **49**, 51, 216–217, 224; Jsb. Chem., 1883, 1571–1574; 1884, 1600–1601; Roy. Soc. C. Sci. Papers, 1891, **10**, 544.

1883: 262. GERBER. Sur l'hypothèse de Prout.

Bull. soc. chim. Paris, 1883, **39**, 562–572; Ber., 1883, **16**, 1669; Chem. Centrbl., 1883, 453–456; Beibl. Ann. der Phys., 1883, **7**, 42 (Lit. Uebers.); Chem. News, 1883, **51**, 64–66; Jsb. Chem., 1883, 33–34; 1885, 29; Roy. Soc. C. Sci. Papers, 1891, **9**, 988.

1883: 263. CROOKES. The Bakerian Lecture: On radiant matter spectroscopy. A new method of spectrum analysis.

Roy. Soc. Lond. Proc., 1883, **35**, 262–271; Chem. News, 1883, **47**, 261–264; Ber., 1883, **16**, 1689; Jsb. Chem., 1883, 248; Roy. Soc. C. Sci. Papers, 1891, **9**, 608.

1883: 264. CLEVE. Om samarium.

Öfv. K. Sv. Vet. Akad. Förh., 1883, **40**, No. **7**, 2, 17–26; J. Chem. Soc. Lond., 1883, 362–370; C. R., 1883, **97**, 94–96; Chem. News, 1883, **48**, 39, 74–76; Ber., 1883, 2493–2494; Chem. Centrbl., 1883, 585–586, 678; Beibl. Ann. der Phys., 1883, **7**, 634; Jsb. Chem., 1883, 361–362; Roy. Soc. C. Sci. Papers, 1891, **9**, 539–540.

1883: 265. CROOKES. The Bakerian Lecture: On radiant matter spectroscopy. The detection and wide distribution of Yttrium.

Phil. Trans. Roy. Soc., 1883, **174**, pt. **III**, 891–918; Chem. News, 1884, **49**, 159–160, 169–171, 181–182, 194–196, 205–208; Ann. chim. phys., 1884, [**6**], **3**, 145–187; Jour. phys., 1884, **3**, 568; 1885, **4**, 333–335; Jsb. Chem., 1884, 293.

1884: 266. Carnelley. The Periodic Law as illustrated by certain Physical Properties of Inorganic Compounds.

Phil. Mag., 1884, (**5**), **18**, 1-22; Jour. Phys., 1884, **3**, 322; 1885, **4**, 473; Ber., 1884, 372 Ref.; Chem. Centrbl., 1885, 81; Beibl. Ann. der Phys., 1884, **8**, 735-738; Jsb. Chem., 1884, 139-140.

1884: 267. Carnelley. On the Colour of Chemical Compounds, chiefly as a Function of the Atomic Weights of their constituent Elements. Part I, Inorganic Compounds.

Phil. Mag., 1884 [**5**], **18**, 130-140; Jour. Phys., 1884, **3**, 420; 1885, **4**, 473; Ber., 1884, 2151-2156; Chem. News, 1884, **50**, 193; Chem. Centrbl., 1884, 50, 193-194; Jsb. Chem., 1884, 42-45.

1884: 268. Cleve. Le Thorium et ses composés.

Encyclopédie Chimique, Fremy, Paris, 1884, Tome 3, 5° Cahier, pp. 55-71.

1884: 269. Högbom. Om de sallsynta jordarternas natrium dubbelvolframater.

Öfv. K. Sv. Vet. Akad. Förh., 1884, No. **5**, 111-123; Ztschr. Kryst., 1885, **10**, 522; Bull. soc. chim. Paris, 1884, **2**, **42**, 2-6; Ber., 1884, 375 Ref.; Chem. Centrbl., 1884, 698; Jsb. Chem., 1884, 396-397.

1884: 270. Mills. On the numerics of the Elements, part I.

Phil. Mag., 1884, **18**, 393-399; Jour. Phys., 1885, **4**, 473-474; Chem. Ztg., 1884, **8**, **2**, 1803; Ber., 1884, **17**, 600 Ref.; Jsb. Chem., 1884, 45.

1884: 271. Carnelley. The Periodic Law and the Occurrence of the Elements in nature.

Phil. Mag., 1884, (**5**), **18**, 194-200; Jour. Phys., 1884, **3**, 468; 1885, **4**, 473; Ber., 1884, **17**, 2287-2291; Chem. News, 1884, **50**, 242-243; Jsb. Chem., 1884, 40-42.

1884: 272. De Boisbaudran. Séparation du gallium d'avec les autres éléments.

Ann. chim. phys., 1884, [**6**], **2**, 176-271; Chem. Centrbl., 1894, 697; Jsb. Chem., 1884, 1601.

1884: 273. Nordenskiöld. Uransilikat från Garta felsspatsbrott i granskapet af Arendal.

Geol. Fören. Förh., 1884-1885, Bd. **7**, No. **2** (No. **86**), 121-123; Jahrb. Min., 1885, **61**, **1**, 392 Ref.; Ztschr. Kryst., 1885, **10**, 504; Rammelsberg's Min. Chem., 1886, Ergänz., I, 250-251.

1884: 274. De Boisbaudran. Séparation du cérium et du thorium.

C. R., 1884, **99**, 525-526; Bull. soc. chim. Paris, 1885, (**2**), **43**, 79; Ber., 1884, **17**, 507 Ref.; Chem. Ztg., 1884, **8**, **2**, 1762; Chem. News, 1884, **50**, 201; 1885, **51**, 131; Chem. Centrbl., 1884, 805; Jsb. Chem., 1884, 1594.

1885: 275. Cleve. Om vätesuperoxidens inverkan på jordarter.

Öfv. K. Sv. Vet. Akad. Förh, 1885, No. **1**, 3-14; Bull. soc. chim. Paris., 1885, [**2**], **43**, 53-58; Chem. Centrbl., 1885, 198; Ber., 1885, 318; Jsb. Chem., 1885, 491-493.

1885: 276. De Boisbaudran. Action de l'eau oxygénée sur les oxydes de cérium et de thorium.

C. R., 1885, **100**, 605–607; Chem. News, 1885, **51**, 148; Ber., 1885, 212 Ref.; Chem. Centrbl., 1885, 244; Jsb. Chem., 1885, 493–494.

1885: 277. Brauner. Beitrag zur Chemie der Ceritmetalle, III and IV.

Sitzungsber. Akad. d. Wien. math.-naturw. Cl., 1885, **92**, Abth. II, 814–835; Monatsh. Chem., 1885, **6**, 785–806; J. Chem. Soc. Lond. 1885, **47**, 879–897; Chem. Centrbl., 1885, 934; Ber., 1885, **18**, 605–606, 698–699 Ref.; Jsb. Chem., 1885, **I**, 32, 477.

1885: 278. Troost. Sur la densité de vapeur du chlorure de thorium et la formule de la thorine.

C. R., 1885, **101**, 360–361; J. Am. Chem. Soc., 1885, **7**, 285–286; Ber., 1885, 532 Ref.; Chem. Ztg., 1885, **9**, **2**, 1206; Chem. News, 1885, **52**, 106; Chem. Centrbl., 1885, 741; Jsb. Chem., 1885, 46.

1885: 279. Eakins. On allanite and gadolinite.

Proc. Col. Sci. Soc., 1885, **2**, 32–35; Ztschr. Kryst., 1886–1887, **12**, 493–494; Chem. News, 1886, **53**, 282; Jahrb. Min., 1889, **69**, **1**, 28–29 Ref.; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 272–276; Jsb. Chem., 1886, 2264.

1885: 280. Rammelsberg. Über die Oxyde des Mangans und Urans.

Sitzungsber. Königl. Akad. d. Wiss. Berlin, 1885, **I**, 97–104; Ztschr. Kryst., 1887, **13**, 418–419; Ber., 1886, 50 Ref.; Chem. Centrbl., 1885, 299; Jsb. Chem., 1885, 536–537.

1885: 281. Brögger. Forelöbig meddelelse om to nye norske mineraler Läventit og Cappelinit.

Geol. Fören. Förh., 1884–1885, Bd. **7**, No. **10**, (No. **94**), 598–599; Ztschr. Kryst., 1885, **10**, 503–504; 1890, **16**, 462–467; Jahrb. Min., 1887, **65**, I, 229–230 Ref.; Bull. soc. franç. min., 1885, **8**, 126–127; Rammelsberg's Min. Chem., 1886, Ergänz., I, 55–56; 1895, Zweites Suppl., 303–304.

1885: 282. Troost. Sur le métaphosphate de thorium.

C. R., 1885, **101**, 210–212; Chem. News, 1885, **52**, 82; Rev. scientif., 1885, [3], **10**, 120; Monit. sci. Quesneville, 1885 [**3**], **15**, 916; Ber., 1885, 532 Ref.; Chem. Centrbl., 1885, 663; Jsb. Chem., 1885, 497.

1885: 283. Blomstrand. Om ett uranmineral från trakten af Moss samt om de nativa uranaterna i allmänhet.

Geol. Fören. Förh., 1884–1885, Bd. **7**, No. **2**, (No. **86**), 59–101; J. prakt. Chem., 1884 [**2**], **29**, 191–229; Ann. chim. phys., 1885, [**6**], **4**, 129–135; Jahrb. Min., 1885, **61**, **1**, 390–391 Ref.; Am. J. Sci., 1884, [**3**], **27**, 493–494; Ztschr. Kryst., 1885, **10**, 496–498; C. R., 1884, **98**, 816–817; J. Chem. Soc. Lond., 1884, **46**, 1102; Ber., 1884, **17**, 250 Ref.; Chem. Centrbl., 1884, 420, 568; 1885, 278; Rammelsberg's Min. Chem., 1886, Ergänz., I, 247–249; 1895, Zweites Suppl., 67–74; Jsb. Chem., 1884, 1938–1939.

1885: 284. Crookes. On Radiant Matter spectroscopy. Part II. Samarium.

Roy. Soc. Lond. Proc., 1884–1885, **38**, 414–422; C. R., 1885, **100**, 1380–1382, 1495–1497; Chem. News, 1885, **51**, 301–303; Ber., 1885, 491 Ref.; 1886, **19**, 736–738 Ref.; Chem. News, 1886, **54**, 28–31, 40–43, 54–56, 63–66, 76–79; Jsb. Chem., 1885, 331–332, 332.

1885: 285. Genth and Kerr. The Minerals and Mineral Localities of North Carolina.

Geol. of N. C., 1885, vol. **2**, chap. **I**, 1–128.

1885: 286. Haushofer. Mikroscopische Reactionen. Eine Anleitung zur Erkennung verschiedener Elemente unter dem Mikroskop, als Supplement der Qualitativen Analyse, München, 1885 (on Thorium salts), pp. 127–130.

Ztschr. Kryst., 1887, **13**, 171–175.

1885: 287. Meyer and Seubert. Ueber die Einheit der Atomgewichte.

Ber., 1885, 1089–1097; J. Chem. Soc. Lond., 1885, **47**, 426–433; Chem. News, 1886, **53**, 245–248; Am. Chem. J., 1885–1886, **7**, 96–104; Jsb. Chem., 1885, 29–30; 1886, 42.

1885: 288. Söderbaum. Om dubbeloxalater af Platina.

Öfv. K. Sv. Akad. Förh., 1885, No. **10**, 25–39; J. Chem. Soc. Lond., 1886, **50**, 532–533; Bull. soc. chim. Paris, 1886, (**2**), **45**, 188-193; Chem. News, 1886, **53**, 114; Ber., 1886, **19**, 3, 203-204; Chem. Centrbl., 1886, 230; Jsb. Chem., 1886, 1604–1606.

1886: 289. Hidden. Contributions to Mineralogy by Wm. Earl Hidden, with Crystallographic Notes by A. Des Cloiseaux. I. North Carolina Mineral Localities.

Am. J. Sci., 1886 [3], **32**, 204–211; Jahrb. Min., 1890, **71**, I, 219-221 Ref.; Ztschr. Kryst., 1886–1887, **12**, 506–508; Bull. soc. franç. min., 1886, **9**, 313–314; Jsb. Chem., 1886, 2239, 2257, 2258.

1886: 290. Rammelsberg. Ueber die chemische Natur des Eudialyts.

Sitzungsber. Königl. Akad. d. Wiss. Berlin, 1886, **1**, 441–461; Ztschr. deut. geol. ges., 1886, **38**, 497-506; Ber., 1887, **20**, 413–414 Ref.; Ztschr. Kryst., 1887, **13**, 636–640; Rammelsberg's Chemische Abhandlung, 1838–1888, 214–216; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 447–450; Jsb. Chem., 1886, 2292–2293.

1886: 291. Van der Plaats. Essai de calcul des poids atomiques de M. Stas.

Ann. chim. phys., 1886, [**6**], **7**, 499–533; Recueil trav. chim. des Pay Bas., 1886, **5**, 123–126; Ztschr. anal. Chem., 1887, **26**, 275–276; Ztschr. anorg. Chem., 1894, **5**, 311; Jahrb. Erfind., 1887, **26**, 275–276; Chem. News, 1886, **54**, 52–53, 66, 78–79; Naturw. Rundschau, 1886, I, 202–203; Chem. Centrbl., 1886, 561–562; Ber., 1886, 427 Ref.

1886: 292. Troost and Ouvrard. Sur quelques phosphates doubles de thorium et de potassium ou de zirconium et de potassium.

C. R., 1886, **102**, 1422–1427; Ber., 1886, **19**, 659 Ref.; Chem. Centrbl., 1886, 594; Jsb. Chem., 1886, 453–454.

1886: 293. Rammelsberg. Ueber einem neuen Fall der Isomorphie zwischen Uran and Thorium.

Sitzungsber. Königl. Akad. d. Wiss. Berlin, 1886, 559, 603–606; Rammelsberg's Chemische Abhandlung, 1838–1888, 216, 217; Ztschr. Kryst., 1888–1889, **15**, 640–641; Ber., 1887, **20**, 412 Ref.; Chem. Centrbl., 1886, 873.

1886: 294. Report of Committee consisting of Professor Sir H. E. Roscoe, Mr. J. N. Lockyer, Professors Dewar, Wolcott Gibbs, Liveing, Schuster, and W. N. Hartley, Captain Abney, and Dr. Marshall Watts (Secretary), appointed for the purpose of preparing a new series of Wave-length tables of the Spectra of the Elements and Compounds.

Brit. Assoc. Adv. Sci., 1885, 288–322; 1886, 167–204; Beibl. Ann. der Phys., 1888, 193–194.

1886: 295. Note. Minerals containing rare earths.

Eng. and Min. Journal, 1886, **42**, 24.

1886: 296. Carnelley. Suggestions as to the Cause of the Periodic Law and the Nature of the Chemical Elements.

Chem. News, 1886, **53**, 157–159, 169–172, 183–186; Ber., 1886, **19**, 281, 523 Ref.; Chem. Centrbl., 1886, 354; Jsb. Chem., 1886, 16.

1886: 297. Mills. On the numerics of the elements, part II.

Phil. Mag., 1886, [**5**], **21**, 151–157; Jsb. Chem., 1886, 42.

1887: 298. Nordenskiöld. Ytterligare iakttagelser om Gadolinitjorden atomvigt.

Öfv. K. Sv. Vet. Akad. förh., 1887, No. **7**, 463–469; C. R., 1886, **103**, 795–798; Chem. News, 1886, **54**, 241–242; Naturw. Rundschau, 1887, **2**, 12–13; Ber., 1887, 5 Ref.; Chem. Centrbl., 1886, 906; Jsb. Chem., 1886, I, 57–58.

1887: 299. Crookes. Genesis of the Elements. (A Lecture delivered before the Royal Institution February 18, 1887).

Genesis of the Elements, William Crookes, London, 1887; Chem. News, 1887, **55**, 83–88, 95–99; Jsb. Chem., 1887, 5.

1887: 300. Troost and Ouvrard. Sur quelques phosphates doubles de thorium et de sodium ou de zirconium et de sodium.

C. R., 1887, **105**, 30–34; Chem. News, 1887, **56**, 57; Chem. Centrbl., 1887, 1015; Ber., 1887, **20**, 534 Ref.; Jsb. Chem., 1887, 554–556.

1887: 301. Crookes. On Radiant Matter spectroscopy:—Examination of the Residual Glow.

Roy. Soc. Lond. Proc., 1887, **42**, 111–131; Chem. News, 1887, **55**, 107–110, 119–121, 131-132; Jsb. Chem., 1887, 355–356.

1887 : 302. Brögger. Forelöbig meddelelse om mineralerne på sydnorske augit-og nefelinsyeniters grovkornige gange.

Geol. Fören. förh., 1887, Bd. **9**, No. **4** (No. **109**), 247–274; Jahrb. 1889, **70**, 2, 432–440 Ref.; Ztschr. Kryst., 1888–1889, **15**, 103- Chem. Centrbl., 1890, I, 698–700; Rammelsberg's Min. Chem., Zweites Suppl., 304–305.

1887 : 303. Willgerodt. Die Halogenüberträger in den natürli Gruppen und den Perioden der Elemente.

J. präkt. Chem., 1887, [**2**], **35**, 391–400; Chem. Centrbl., 1887, Ber., 1887, 312 Ref.; Jsb. Chem., 1887, 618–619.

1887 : 304. Dredge. Gas Lighting by incandescence.

Amer. Soc. Mech. Eng., 1887, **8**, 663–675; J. Gas L., 1887, **50**, 998- Engineering, London, 1887, **44**, 139, 469–470, 538–539.

1887 : 305. Krüss and Nilson. Ueber die Dampfdichte des Thori chlorids.

Ztschr. physikal. Chem., 1887, **1**, 301–306; Ber., 1887, **20**, 498 Nature, 1887, **36**, 255; Ztschr. anal. Chem., 1888, **27**, 199; Ann der Phys., 1887, **11**, 675–676; 58 Lit. Uebers; Chem. Cen 1887, 947; Jsb. Chem., 1887, 69–70.

1887 : 306. Krüss and Nilson. Om thoriums eqvivalent-och atom

Öfv. K. Sv. Vet. Akad. förh., 1887, No. **5**, 232, 251–265; Ber., 20, 1665–1676; J. anal. Chem., 1887, 339; Beibl. Ann. der P 1887, **11**, 50 Lit. Uebers; Jahrb. Min., 1889, **69**, 1, 394 Ref.; C Ztg., 1887, 740; Ztschr. anal. Chem., 1888, **27**, 546; Chem. Cen 1887, 977–978; Jsb. Chem., 1887, 55–58.

1887 : 307. Krüss and Nilson. Om jordarterna och niobsyran i gusonit.

Öfv. K. Sv. Vet. Akad. förh., 1887, No. **5**, 232, 267–285; Ber., 20, 1676–1690; Beibl. Ann. der Phys., 1887, **11**, 50 Lit. Ue Chem. Centrbl., 1887, 1018; Jsb. Chem., 1887, 573–578.

1887 : 308. Krüss and Nilson. Studier öfver sallsynta jordarter sorptionsspektra och komponenter.

Öfv. K. Sv. Vet. Akad. förh., 1887, No. **6**, 348, 361–404; Ber., **20**, 2134–2171; Chem. News, 1887, **56**, 74–77, 85–87, 135–137, 145 154–156, 165–167, 172–173; Beibl. Ann. der Phys., 1887, **11**, 707- 63 Lit. Uebers; Chem. Centrbl., 1887, 1188; Jsb. Chem., 1887,

1887 : 309. Bazarow. Über die Atomgewichte der Elemente.

Zhurnal russk. fiz. khim. obsc., 1887, **19**, 61–73; Ber., 1887, **20**, 192 Ref.; Chem. Centrbl., 1887, **18**, 619–620; Beibl. Ann Phys., 1887, **11**, 50 Lit. Uebers.

1887 : 310. Nilson and Petterson. Ueber einige physikalische stanten des Germaniums und Titans.

Ztschr. physikal. Chem., 1887, **I**, 27–38; Chem. News., 1887, **55**, 187; J. Chem. Soc. Lond., 1887, **52**, 778; Ber., 1887, **20**, 134 Chem. Centrbl., 1887, **18**, 329–330; Beibl. Ann. der Phys., 188 229–230; 22 Lit. Uebers.

1887: 311. Nordenskiöld. Thorit från två nya fyndorter i Norge.

Geol. Fören. Förh., 1887, Bd. **9**, No. **1** (**106**), 26–28; Jahrb. Min., 1889, **69**, 1, 396–397 Ref.; Ztschr. Kryst., 1888–1889, **15**, 97–98; Chem. Centrbl., 1891, **I**, 611.

1887: 312. Troost and Ouvrard. Sur les silicates de thorine.

C. R., 1887, **105**, 255–258; Ber., 1887, **20**, 534 R.; Chem. News, 1887, **56**, 114; Nature, 1887, **36**, 360; Chem. Centrbl., 1887, 1098; Jsb. Chem., 1887, 556.

1887: 313. Blomstrand. Analys af cer-och ytterfosfater från Södra Norge ett bidrag till frågan om dessa mineraliers kemiska byggnad.

Geol. Fören. Förh., 1887, **9**, No. **3**, (No. **108**), 160–187; Jahrb. Min., 1889, **70**, **2**, 44–46 Ref.; Ztschr. Kryst., 1888–1889, **15**, 99–103; Chem. Centrbl., 1887, 934; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 134–137, 137–138.

1887: 314. Auer von Welsbach. The Chemistry of the Welsbach light.

Industries, 1887, **2**, **I**, 493; J. Gas. L., 1887, **49**, 959.

1888: 315. Clarke. The Constants of Nature. Part I (new edition), 1888, pp. 420.

Smithsonian Misc. Coll., 1888, vol. **32**; Sp. Grav. solids and liquids. Thorium and its compounds, pp. 6, 48, 58, 88, 100, 116, 118, 133, 144, 361.

1888: 316. Penfield and Sperry. Monazite from Alexander Co., N. C.

Am. J. Sci., 1888, [3], **36**, 317–331; Ztschr. Kryst., 1889–1890, **17**, 407; Jahrb. Min., 1891, **74**, **2**, 241–245 Ref.; Bull. soc. franç. min., 1889, **12**, 502–505; Chem. Centrbl., 1888, 1583–1585.

1888: 317. Note. Extended use of some of the rarer minerals.

Eng. and Min. Jour., 1888, **46**, 1–2.

1887–1888: 318. Blomstrand. Till frågan om gadolinitjordens atomvigt och gadolinitens sammansättning.

Acta Universitatis, Lund., 1887–1888, **24**, 2, 3, 1–26; Ztschr. Kryst., 1892, **20**, 366–367; S. of M. Quar., 1892, **15**, 168; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 272–276.

1888: 319. Klüss. Zur kenntniss der unterschwefelsauren salzen. I and II.

Dissertation Berlin 14/$_1$, [7/$_1$], II, Chem. Inst. d. Univ.; Ann. Chem. Liebig, 1888, **246**, 179–220, 284–306; Chem. Centrbl., 1888, 215–216, 1021, 1151–1152; Ber., 1888, 592–594 Ref.; Jsb. Chem., 1888, 477–485.

1888: 320. Hillebrand. Uraninite.

Am. J. Sci., 1888, [3], **36**, 295; Jahrb. Min., 1891, **74**, **2**, 44 Ref.; Ztschr. Kryst., 1889–1890, **17**, 404.

1888 : 321. PETERSSON. Analyser af gadolinit och homilit.

Öfv. K. Sv. Vet. Akad. Förh., 1888, No. **3**, 179–186; Jahrb. Min., 1891, I, 372–374 Ref.; Ber., 1888, 569 Ref.; Jsb. Chem., 1888, 571.

1888 : 322. MEYER. (Various properties of Thorium and its salts.)

Lothar Meyer, Modern Theories of Chemistry, 1888, 5th edition (English transl.); Spec. heat, p. 75; Atomic Wts., p. 89, 90, 120, 123–168.

1888 : 323. DIXON. "Monazite analysis."

Liversidge, The Minerals of New South Wales, 1888, 3d ed., pp. 326; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 134–135.

1888 : 324. HIDDEN and MACKINTOSH. On a new Thorium mineral, Auerlite.

Am. J. Sci., 1888, (3), **36**, 461–463; Jahrb. Min., 1891, **74**, **2**, 240 Ref.; Ztschr. Kryst., 1888–1889, **15**, 295–297; Bull. soc. franç. min., 1889, **12**, 505–506; 1890, **13**, 401; Chem. News, 1889, **59**, 67–68; Ber., 1889, 227 Ref.; S. of M. Quar., 1891, **12**, 259; Chem. Centrbl., 1889, **I**, 139; 1890, **I**, 337; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 457; Jsb. Chem., 1888, 637–638.

1889 : 325. HIDDEN and MACKINTOSH. A description of several Yttria and Thoria Minerals from Llano county, Texas.

Am. J. Sci., 1889, [**3**], **38**, 474–486; Ztschr. Kryst., 1891, **19**, 88–93; Chem. News, 1890, 7-9, 18–20; Jahrb. Min., 1893, **77**, **1**, 256-259 Ref.; Bull. soc. franç. min., 1890, **13**, 383–386; Ber., 1890, 321–322 Ref.; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 67–74, 165-166, 454; Chem. Centrbl., 1890, **I**, 281–283; S. of M. Quar., 1890, **11**, 177, 178, 179, 180, 181; 1891, **12**, 259; 1893, **14**, 329.

1889 : 326. HILLEBRAND. Notes on the composition of Uraninite.

Am. J. Sci., 1889, [3], **38**, 329; Jahrb. Min., 1893, **77**, 1, 478 Ref.; Chem. Centrbl., 1890, **I**, 336; S. of M. Quar., 1890, **11**, 83.

1889 : 327. TROOST and OUVRARD. Sur quelques phosphates et quelques silicates de thorine et sur les composés correspondants de la zircone.

Ann. chim. phys., 1889, (**6**), **17**, 227–245; Chem. Centrbl., 1889, 20; Jsb. Chem., 1889, 561–562.

1889 : 328. CROOKES. Recent researches on the Rare Earths as interpreted by the Spectroscope.

J. Chem. Soc. Lond., 1889, **55**, 255–285; Chem. Soc. Lond. Proc., 1889, **5**, No. 65, 57–62; Nature, 1888–1889, **39**, 537–543; Chem. News, 1889, **60**, 27–30, 39–41, 51–53, 63–66; Chem. Centrbl., 1889, **I**, 742–743; 1889, **II**, 20; Jsb. Chem., 1889, 315–316, 2393.

1889 : 329. EDITORIAL. Ueber die Entstehung der Elemente.

Jahrb. Erfind., 1889, 252–266.

1889 : 330. MENDELÉEFF. The Periodic Law of the Chemical Elements.

J. Chem. Soc. Lond., 1889, **55**, 634–656, with table; Chem. Soc. Lond. Proc., 1889, **5**, No. 69, 92; 1889, **5**, No. 70, 93; Mendeléeff, Principles of Chemistry, 1897, 6th ed., vol. 2, Appendix 2, pp. 471–490.

1889: 331. BRAUNER. Experimental Researches on the Periodic Law. Part I.

J. Chem. Soc. Lond., 1889, **55**, 382–411.

1889: 332. BETTENDORFF. Studien über die Erden der Cerium-und Yttrium-Gruppe. I, II, III.

Ann. chem. Liebig, 1889, **256**, 159–170; 1891, **263**, 164–174; 1892, **270**, 376–383; Chem. Centrbl., 1890, 61. I, 707; 1891, 62, II, 247–248; 1892, 63, II, 393-394; Bull. soc. chim. Paris, 1890, (**3**), **4**, 669–670; 1892, (**3**), **8**, 296; 1893, (**3**), **10**, 771; J. Chem. Soc. Lond., 1890, **58**, 851–852; 1891, **60**, 984–986; 1892, **62**, 1400–1401; Chem. News, 1891, **63**, 159–160, 172–173, 180–181; 1892, **66**, 307, 320–321; Ztschr. anorgan. chem., 1893, **3**, 334–335; Ber., 1890, **23**, 226–227 Ref.; 1891, 440 Ref.; 1892, 765 Ref.; Jsb. Chem., 1890, **I**, 549–553; 1890, **I**, 502–504; 1892, **I**, 716–719.

1889: 333. NOTES BY P. G. BAKER. Thorium chloride.

Am. Chem. J., 1889, **11**, 138.

1889: 334. GENTH. Contributions to Mineralogy. No. 44. Monazite.

Am. J. Sci., 1889, (3), 38, 198–203; Jahrb. Min., 1893, **77**, 261 Ref.; Ztschr. Kryst., 1891, **19**, 86–88; Min. Mag., 1890-1891, **9**, 248; Bull. soc. franç. min., 1890, **13**, 381; Chem. Centrbl., 1890, **I**, 279–280; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 134–137.

1889: 335. JOHNSSON. Ueber einige Phosphate von mehrwerthigen Metallen.

Ber., 1889, **22**, 976–980; Chem. Centrbl., 1889, **I**, 807; Jsb. Chem., 1889, 415–416.

1889: 336. BLOMSTRAND. Om några svenska monaziter.

Geol. Fören. Förh., 1889, Bd. **11**, No. **6**, (No. **125**), 379–388, Jahrb. Min., 1892, **75**, **I**, 45–47 Ref.; Ztschr. Kryst., 1891, **19**, 109; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 134–137; S. of M. Quar., 1891, **12**, 354.

1890: 337. PETERSSON. Studier öfver gadolinit.

Geol. Fören. Förh., 1890, Bd. **12**, No. **4** (No. **130**), 275–347; Inaugural Dissertation der Universität Upsala, 1890; Ztschr. Kryst., 1892, **20**, 376–382; Jahrb. Min., 1893, **77**, I, 240–246 Ref.; S. of M. Quar., 1892, **15**, 168; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 272–276.

1890: 338. BLOMSTRAND. Om monaziten från Ural.

Acta Universitatis Lund., 1888–1889, Bd. **25**, **4**, 1–11; J. prakt. Chem., 1890, n. s. **41**, 266–277; Ztschr. Kryst., 1892, **20**, 367–368; Jahrb. Min., 1892, **75**, 44–45 Ref.; Ber., 1890, 323 Ref.; Chem. Centrbl., 1890, **I**, 871–872; S. of M. Quar., 1893, **15**, 171; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 134–137; Jsb. Chem., 1890, 603–605.

1890: 339. BRÖGGER. Die Mineralien der Syenitpegmatitgänge der südnorwegischen Augit-und Nephelinsyenit.

Geol. Fören. Förh., 1891, Bd. **13**, No. **2**, (No. **135**), 128–131; Ztschr. Kryst., 1890, **16**, 1–235 and 1–658, mit 29 Tafeln.; Chem. Centrbl., 1890, **61**, **2**, 408–416, 456–462; Jahrb. Min., 1892, **75**, **1**, 238- 296–307 Ref.; S. of M. Quar., 1891, **12**, 70; Rammelsberg's Chem., 1895, Zweites Suppl., 137–138, 180–181, 303–304, 304- 305–306, 307, 445, 445–446, 453, 455.

1890: 340. HILLEBRAND. Analyses of Samarskite? and an ill-defi Zirconium mineral.

Bull. U. S. Geol. Survey, 1889–1890, **55**, 48–52; Proc. Col. Sci. 1889–1890, **3**, 38–47; Jahrb. Min., 1891, **74**, **2**, 38–40 Ref.; Zt Kryst., 1891, **19**, 638–640; Rammelsberg's Min. Chem., Zweites Supppl., 167–168.

1890: 341. HILLEBRAND. On the occurrence of Nitrogen in Urani and on the composition of Uraninite in general.

Bull. U. S. Geol. Survey, 1891, **78**, 43–79; Am. J. Sci., 1890, [**3**] 384–394; Chem. News, 1891, **64**, 221–222, 230–233, 244–247, 255- 279–281, 290–293, 302–304; Berg. u. H. Ztg., 1891, **50**, n. s. **45** Chem. Ztg., Repert. 1890, **14**, 344; Ztschr. Kryst., 1892, **20**, 484; Giorn. Min., 1890, I, 337; S. of M. Quar., 1891, **12**, 173; melsberg's Min. Chem., 1895, Zweites Suppl., 67–74; Chem. Cen 1890, **61**, **2**, 968–970; Jsb. Chem., 1891, 419–420.

1890: 342. DEMARÇAY. Les terres rares.

Revue Gen. des Sci., 1890, 396–402.

1890: 343. EAKINS. Analysis of Gadolinite.

Bull. U. S. Geol. Survey, 1890, **64**, 40; Ztschr. Kryst., 1891, **19** 89; 1892, **20**, 499–500; Chem. News, 1893, **67**, 79.

1890: 344. HIDDEN and MACKINTOSH. On the occurrence of Polyc or of an allied species in both North and South Carolina.

Am. J. Sci., 1890, [**3**], **39**, 302–306; Bull. soc. franç. min., 1890, 393; Giorn. Min., 1890, I, 184, 333; Chem. Centrbl., 1890, **II**, 262; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 177–17

1890: 345. GE NT Allanite.

Am. J. Sci., 1890, [**3**], **40**, 118; Jahrb. Min., 1893, **2**, 459–461 Ztschr. Kryst., 1892, **20**, 472–475; Chem. Centrbl., 1890, **II**, 462- Rammelsberg's Min. Chem., 1895, Zweites Suppl., 255–256.

1890: 346. BAKHUIS ROOZEBOOM. Sur Les Relations entre le su thorique anhydre et ses hydrates, et sur les phénomènes d lentissement dans l'hydratation et la déshydratation de ce se

Hollandsche maatschappij der wetenschappen te Haarlem; Arc néerlandaises des sciences exactes et naturelles, 1890, **24**, 233- Ztschr. physikal Chem., 1889–1890, **5**, 198–216; Chem. News, 273; Ostwald, On Solutions, pp. 75–77; Chem. Centrbl., 189 990; Jsb. Chem., 1890, **I**, 230–231.

1891: 347. CLARKE. Table of atomic weights, issued December 6, 1

Chem. News, 1891, **63**, 76–77; Ztschr. physikal Chem., 1891, **8**, 236; Fortschr. Phys., 1891, **47**, 1–2, 66–67; J. anal. Chem., 54–55; Jsb. Chem., 1891, 79.

1891 : 348. **Eakins.** New analyses of Astrophyllite and Tscheffkinite.

Am. J. Sci., 1891, [**3**], **42**, 34–38; S. of M. Quar., 1891, **12**, 360; Jahrb. Min., 1894, **1**, 56–57 Ref.; Bull. U. S. Geol. Survey, 1892–1893, **90**, 41–44; Ztschr. Kryst., 1893, **22**, 559–560; Bull. soc. franç. min., 1894, **17**, 98; Chem. Centrbl., 1891, **II**, 561–562; Rammelsberg's Min. Chem, 1895, Zweites Suppl., 446.

1891 : 349. **Behrens.** Essai d'une methode d'analyse qualitative microchimique.

Ann. de l'École polyt. de Delft, 1891, **6**, 82–176; Ztschr. anal. Chem., 1891, **30**, 125–174; Chem, News, 1891, **64**, 5–6, 32, 40–41, 52–53, 64–65, 76–77, 110–112, 123–124, 149–150, 159–160, 173–175, 183–185; 1890, **63**, 294, 303–304; Bull. Soc. Chim. Paris, 1892, **8**, 1032–1035; Chem. Ztg., Repert. 1891, **15**, 140–141; Jahrb. Min., Beiläge Band, 1891, **7**, 435–470; Ber., 1891, 588–589 Ref.; Chem. Centrbl., 1891, **I**, 804–806; 1891, **II**, 277; Jsb. Chem., 1891, 2384.

1891 : 350. **Hart.** The Welsbach Incandescent Light.

J. anal. Chem., 1891, 41–43.

1891 : 351. **Hidden** and **Mackintosh.** Supplementary notice on the Polycrase of North and South Carolina.

Am. J. Sci., 1891, **41**, 423–425; Ztschr. Kryst., 1893, **22**, 418–419; Giorn. min., 1891, **2**, 159; Bull. soc. franç. min., 1894, **17**, 65; Chem. Centrbl., 1891, **II**, 77; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 177–178.

1891 : 352. **Hidden.** Preliminary notice of a new yttrium-silicate.

Am. J. Sci., 1891, **42**, 430–431; S. of M. Quar., 1892, **13**, 264; Chem. Centrbl., 1892, **II**, 752.

1891 : 353. **Hidden** and **Mackintosh.** Auerlite.

Am. J. Sci., 1891, **41**, 438; Ztschr. Kryst., 1893, **22**, 419–420; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 457.

1891 : 354. **Hidden.** Orangeite.

Am. J. Sci., 1891, **41**, 439; Ztschr. Kryst., 1893, **22**, 420–421; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 453.

1891 : 355. **Editorial.** On the orangeite from Landbö, Norway.

Am. J. Sci., 1891, **41**, 440; S. of M. Quar., 1891, **12**, 360; 1892, **13**, 265–266; Chem. Centrbl., 1891, **II**, 78.

1891 : 356. **Genth.** The Minerals of North Carolina.

Bull. U. S. Geol. Survey, 1891, **74**, 13–119; Jahrb. Min., 1893, **77**, **1**, 261 Ref.

1891 : 357. **Winkler.** Ueber die Reduction von Sauerstoff verbindungen durch Magnesium. (V. Abhandlung).

Ber., 1891, 873–899; Chem. Centrbl., 1891, **I**, 911–913; Jsb. Chem., 1891, 494–499.

1891: 358. Brauner. Ueber das Atomgewicht des Lanthans.

Ber., 1891, **24**, 1328–1331; J. Chem. Soc. Lond., 1891, **60**, 881–882; Chem. Centrbl., 1891, 149–150; Jsb. Chem., 1891, 84–85.

1891: 359. Nordenskiöld. Ytterligare om Gadolinit-jordens molekylarvigt.

Bihang. till. K. Sv. Vet. Akad. Handl., 1891–1892, **17**, Afd. **II**, No. **1**, 4, 26.

1891: 360. MacKean. Incandescent Gas-lighting.

J. Soc. Chem. Ind., 1891, 196-201; Am. Gas Light J., 1891, **54**, 367–368, 744–745; J. Gas L., 1891, **57**, 345–346; Ber., 1891, 522 Ref.; Jsb. Chem., 1891, 2789.

1891: 361. Walker. On the periodic tabulation of the Elements.

Chem. News, 1891, **63**, 251–253; Ber., 1891, 702 Ref.; Chem. Centrbl., 1891, 8; Jsb. Chem., 1891, 90–92.

1891: 362. Krüss. Beiträge zur Chemie des Erbiums und Didyms.

Ann. chem. (Liebig), 1891, **265**, 1–27, I Mitth.; Chem. News, 1891, **64**, 65–66, 75–77, 99–101, 120–121; J. Chem. Soc. Lond., 1891, **60**, 1424–1426; Ber., 1891, 700–701 Ref.; Chem. Centrbl., 1891, **II**, 647–648; Jsb. Chem., 1891, 505–509.

1891: 363. Haitinger. Über die Emissionsspectra des Neodym-und Praseodymoxydes und über neodymhaltende Leuchtsteine.

Monatsh. Chem., 1891, **12**, 362–367; Chem. Centrbl., 1891, **62**, **2**, 791–792; Ber. 1891, 892 Ref.; Bull. soc. chim. Paris, 1892, **8**, 407–408.

1891: 364. Hillebrand. New analyses of Uraninite.

Am. J. Sci., 1891, (**3**), **42**, 390–393; Bull. U. S. Geol. Survey, 1892–1893, **90**, 22–25; Berg. u. H. Ztg., 1892, **51**, n. s. **46**, 22; S. of M. Quar., 1892, **13**, 265; Chem. Centrbl., 1892, **II**, 751–752; Ztschr. Kryst., 1893, **22**, 569–571; Giorn. min., 1891, II, 316; Bull. soc. franç. min., 1894, **17**, 101; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 67–74.

1892–1894: 365. Prior. Fergusonite from Ceylon.

Min. Mag., 1892–1894, **10**, 234–238; Giorn. min., 1893, **4**, 300; Rammelsberg's Min.Chem., 1895, Zweites Suppl., 165–166.

1892: 366. Hillebrand and Melville. On the Isomorphism and Composition of Thorium and Uranous sulphates.

Am. Chem. J., 1892, **14**, 1–9; Bull. U. S. Geol. Survey, 1892–1893, **90**, 26–33; Chem. News, 1892, **65**, 230-232; Ztschr. anorgan. Chem., 1892, **I**, 251; Ztschr. Kryst., 1894, **23**, 615; Chem. Centrbl., 1892, **I**, 554–555; Bull, soc. chim. Paris, 1893, [**3**], **10**, 659–660; Fortschr. Phys., 1893, **49**$^{1-2}$, 282; Ber., 1892, 408 Ref.; Jsb. Chem., 1892, 21–23.

1892: 367. Bossner. The new Welsbach Lamp.

Paper read before Austro-Hungarian Gas Assoc., 1892; abridged for the Gas World; Am. Gas Light J., 1892, **57**, 439.

1893: 368. Note. Auer'sches Gasglühlicht.

Industrie Blätter, 1893, Nr. **43**, 339; Berg. u. H. Ztg., 1893, **52**, n. s. **47**, 437.

1893: 369. Note. Das Auer'sches Glühlicht.

Ztschr. d. Ver. deut. Ing., 1893, **37**, Nr. **11**, 310–315; Berg. u. H. Ztg., 1893, 204.

1893: 370. Mallet. Stas Memorial Lecture.

J. Chem. Soc. Lond., 1893, **63**, 1–56; Chem. Soc. Lond. Proc., 1892, **8**, No. 117, 203–211; Chem. Centrbl., 1893, **I**, 378–379, 506; Chem. News, 1893, **67**, 19–22; Jsb. Chem., 1892, 76.

1893: 371. Clarke. Report of Committee on Determination of Atomic Weights, published during 1893.

J. Am. Chem. Soc., 1894, **16**, 179–193; Chem. News, 1894, **69**, 178–179, 190–191, 196–197, 208–210; Chem. Centrbl., 1894, **I**, 809–810, 1110; Fortschr. Phys., 1893, **49**$^{1-2}$, 177.

1893: 372. Krüss and Volk. Zur kenntniss der schwefelverbindungen des Thoriums.

Ztschr. anorgan. Chem., 1894, **5**, 75–79; Chem. Centrbl., 1893, **2**, 747–748; Ber., 1893, 1003 Ref.; Jsb. Chem., 1893, **2**, 404–405.

1893: 373. Troost. Sur la préparation du zirconium et du thorium.

C. R., 1893, **116**, 1227–1230; J. Chem. Soc. Lond., 1893, **64**, **2**, 473; Chem. News, 1893, **68**, 28; Ztschr. anorgan. Chem., 1893, **4**, 474 Ref.; Ber., 1893, 483 Ref.; Chem. Centrbl., 1893, **II**, 191; Jsb. Chem., 1893, **II**, 403.

1893: 374. Hidden and Mackintosh. Mineralogical Notes, "Xenotime."

Am. J. Sci., 1893, **46**, 254–257; Ztschr. Kryst., 1895, **25**, 108–109; Jahrb. Min., 1895, **82**, **2**, 27–28 Ref.; Giorn. min., 1893, **4**, 298; Bull. soc. franç. min., 1895, **18**, 152; Chem. Centrbl., 1893, **II**, 976–977.

1893: 375. Polis. Über das Auerlicht.

Chem. Ges. für den Reg. Bez. Aachen.; Industrie Blätter, 1893, 214–215; J. Gas L., 1893, **61**, 1207; Chem. Ztg., 1893, **17**, pt. **I**, 612; Berg. u. H. Ztg., 1893, 437.

1893: 376. Ingalls. The Rare Elements.

The Mineral Industry, New York, 1893, 555–576.

1893: 377. Rundschau. Auerlicht betr.

J. Gasbel, 1893, **36**, 41–42; J. Soc. Chem. Ind., 1893, 820; Chem. Ztg. Rep., 1893, **17**, 35–36; Berg. u. H. Ztg., 1893, 204; J. Gas L., 1893, **61**, 404.

1893: 378. Troost. Sur la préparation du zirconium et du thorium.

C. R., 1893, **116**, 1428–1429; J. de pharm., 1893 [**5**], **28**, 76–77; Ztschr. anorgan. Chem., 1894, **5**, 241 Ref.; Chem. Centrbl., 1893, **II**, 356; Ber., 1893, 669 Ref.; Jsb. Chem., 1893, **2**, 403.

1893: 379. Hidden and Hillebrand. On Mackingtoshite, a new thorium and uranium Mineral, with analyses by W. F. Hillebrand.

Am. J. Sci., 1893 [**3**], **46**, 98–103; Ztschr. Kryst., 1895, **25**, 105–106; Jahrb. Min., 1895, **82**, **2**, 8–9 Ref.; Min. Mag., 1892–1894, **10**, 341; Giorn. min., 1893, **4**, 237; Bull. soc. franç. min., 1895, **18**, 59–60; Chem. Centrbl., 1893, **II**, 831–832; Ber., 1893, 755 Ref.; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 454; Dana's Min., 6th ed., Appendix I, 44; Jsb. Chem., 1893, **2**, 403–404 Ref.

1893: 380. Hillebrand. A further example of the Isomorphism of Thoria and Uranium dioxide.

Bull. U. S. Geol. Survey, 1893, **113**, 40–43; Ztschr. anorgan. Chem., 1893, **3**, 249–251 Ref.; Ztschr. Kryst., 1895, **25**, 283, 636; J. Chem. Soc. Lond., 1893, **64**, 378; Fortschr. Phys., 1893, **49**$^{1-2}$, 283; Chem. Centrbl., 1893, **I**, 925; 1896, **I**, 90; Ber., 1893, **26**, 227 Ref.; Jsb. Chem., 1893, **2**, 585–586.

1893-1894: 381. Hillebrand. The composition of Rowlandite and Mackingtoshite.

Bull. U. S. Geol. Survey, 1893–1894, **113**, 44–48.

1893: 382. Hidden and Hillebrand. Description of Rowlandite.

Am. J. Sci., 1893, [**3**], **46**, 208–212; Jahrb. Min., 1895, **82**, **2**, 14–15 Ref.; Ztschr. Kryst., 1895, **25**, 107–108; Min. Mag., 1892–1894, **10**, 338; Giorn. min., 1893, **4**, 237; Bull. soc. franç. min., 1895, **18**, 150–151; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 276; Chem. Centrbl., 1893, **II**, 834–835.

1893: 383. Haller. La préparation industrielle des terres rares.

Revue Gen. Sci., 1893, 718–719.

1893: 384. Gibbs. Notes on the oxides contained in Cerite, Samarskite, Gadolinite, and Fergusonite.

Am. Chem. J., 1893, **15**, 546–566; Am. Acad. Arts and Sciences, Proc. 1893, n. s., **20**, 260–279.

1893: 385. Holmquist. Pyrochlor från Alnön.

Geol. Fören. Förh., 1893, **15**, 588–606; Jahrb. Min., 1895, **82**, **2**, 15–17 Ref.; J. Chem. Soc. Lond., 1895, **68**, **2**, 509; Ztschr. Kryst., 1895, **25**, 424–425; Min. Mag., 1895–1897, **11**, 231–232; Chem. Centrbl., 1893, **II**, 457–458; Rammelsberg's Min. Chem., 1895, Zweites Suppl., 181.

1893: 386. Nordenskiöld. Neue Untersuchungen über das molekulargewicht der Gadoliniterde.

J. prakt. Chem., 1893, **155**, 1–27; Chem. Centrbl., 1893, **I**, 338–340; Ber., 1893, 263 Ref.; Fortschr.-Phys., 1893, **49**$^{1-2}$, 193–194; Jsb. Chem., 1893, **2**, 508–510.

1893: 387. Richards. The Specific Heats of the Metals.

J. Frankl. Inst., 1893, 3°, **106**, 37–53, 116–131, 178–193; Chem. News, 1893, **68**, 58–60, 69–72, 82–85, 93–94, 105–107.

1893: 388. **Fändreich** and **Oechelhäuser.** Das Auer'sche Gasglühlicht.

Ztschr. d. Ver. d. Ing., 1893, No. **11**, 310–315; Berg. u. H. Ztg., 1893, 204.

1893: 389. **Behrens.** Analyse qualitative microchimique.

Encyclopédie Chimique, Fremy, Paris, 1893, Tome IV, pte. 5, Analyse chimique, pp. 168.

1893: 390. **Sepulchre.** Incandescent Gas-lighting. Liége Assoc. of Engineers. (Brussels section.)

J. Gas L., 1893, **62**, 889; Am. Gas L. J., 1893, **59**, 805.

1893: 391. **Schmidt.** Das periodische Gesetz.

Monatsh. Chem., 1893, **14**, 8–23; Chem. Centrbl., 1893, **64**, **I**, 507; Ber., 1893, 358 Ref.; Jsb. Chem., 1893, 17.

1893: 392. **Deeley.** A New Diagram and Periodic Table of the Elements.

J. Chem. Soc. Lond., 1893, **63**, 852–867; Chem. Soc. Lond. Proc., 1893, **9**, 50, 70; Chem. News, 1893, **67**, 157; Chem. Centrbl., 1893, **64**, **I**, 811; 1893, **64**, **II**, 315; Ber., 1894, 559 Ref.; Jsb. Chem., 1893, 17.

1893: 393. ———. Zur kenntniss der beim Gasglühlicht verwandten substanzen.

Bayr. Ind. Gew., Bl. 1, 25, 550; Chem. Centrbl., 1893, **64**, **II**, 1117–1118.

1894: 394. **Deeley.** The oxides of the elements and the periodic law.

J. Chem. Soc. Lond., 1894, **65**, 106–115; Chem. Soc. Lond. Proc., 1893, **9**, 242, 247; Chem. News, 1893, **68**, 303–304; Chem. Centrbl., 1894, **65**, **1**, 266; Ber., 1894, 539 Ref.

1894: 395. **Thorium.**

Watts' Dictionary of Chem., 1894, Vol. **4**, 710–714.

1894: 396. **Khrushchov.** Analysen des Samarskit, Pyrochlor, Tantalit und Niobit.

Verh. K. russ. min. Ges., 1894, **31**, 412–417; Ztschr. Kryst., 1896, **26**, 335; Dana's Min., 1899, 6th ed., Appendix **I**, p. 56; J. Chem. Soc. Lond., 1896, 70, **2**, 567.

1894: 397. **Auer von Welsbach.** Composition pour l'éclairage par incandescence.

Monit. Sci. Quesneville, 1894, [**4**], **8**, **2**, Patent List, p. 136; Br. Ger. patent 74745, August 15, 1891; 3d addition to patent 39162; 2d addition to patent 44016; see also patent no. 41945.

1894: 398. **Böttinger.** Zur Reinigung des Thoroxyds.

Ztschr. anorgan. Chem., 1894, **6**, 1; J. Gasbel., 1894, 37, 286; Chem. Ztg. Rep., 1894, **18**, 64–65; Chem. Centrbl., 1894, **65**, **1**, 720; Ber., 1894, 248 Ref.

1894: 399. Jannasch. Berichtigung.

Ztschr. anorgan. Chem., 1894, **6**, 175; Ber., 1894, 373 Ref.; Chem. Centrbl., 1894, **65**, **1**, 820.

1894: 400. Dennis and Kortright. Upon the separation of Thorium from rare earths of the Cerium and Yttrium groups by means of Potassium hydronitride.

Am. Chem. J., 1894, **16**, 79–83; Ztschr. anorgan. Chem., 1894, **6**, 35–39; Chem. News, 1894, **69**, 149–150; Ztschr. anal. Chem., 1895, **34**, 82–85; Ber., 1894, **27**, 275 Ref.; Chem. Centrbl., 1894, **65**, **1**, 720–721; S. of M. Quar., 1894, **15**, 279; 1895, **16**, 178.

1894: 401. Krüss. Zur Kenntniss der Schwefelverbindungen des Thoriums.

Ztschr. anorgan. Chem., 1894, **6**, 49–56; Chem. Centrbl., 1894, **65**, **1**, 721; Ber., 1894, 251 Ref.

1894: 402. Jannasch, Locke, Lesinsky. Mittheilungen über Thoriumverbindungen. Vorläufige Mitteilung.

Ztschr. anorgan. Chem., 1894, **5**, 283–287; Ber., 1894, 9 Ref.; Chem. Centrbl., 1894, **65**, **I**, 13; Jsb. Chem., 1893, **2**, 404.

1894: 403. Locke. Über Thorium metaoxyd und dessen Hydrate.

Ztschr. anorgan. Chem., 1894, **7**, 345–350; Chem. Centrbl., 1894, **65**, **II**, 962; Ber., 1894, 869 Ref.

1894: 404. Bokorny. Toxicologische Notizen über einige Verbindungen des Tellur, Wolfram, Cer, Thorium.

Chem. Ztg., 1894, **18**, 1739; Chem. Centrbl., 1894, **65**, **II**, 999.

1894: 405. Volck. Über die Verbindungen der Thorerde mit Phosphorsäure und Vanadinsäure.

Ztschr. anorgan. Chem., 1894, **6**, 161–167; Ber., 1894, 373 Ref.; Chem. Centrbl., 1894, **65**, **I**, 819–820.

1894: 406. Clarke. Report of Committee on Atomic Weights, published during 1894.

J. Am. Chem. Soc., 1894, **17**, 201–212; Chem News, 1895, **72**, 93–94, 105–106, 157, 167, 179–180; Fortschr. Phys., 1895, **51**¹, 149.

1894: 407. Dennis and Magie. Contributions to the Chemistry of Cerium.

J. Am. Chem. Soc., 1894, **16**, 649–664; Ztschr. anorgan. Chem., 1894, **7**, 250–264; Ber., 1894, **27**, 863–864 Ref.; Chem. Centrbl., 1894, **65**, **II**, 773.

1894: 408. Keller. Some recent contributions to our knowledge of metallic reducing agents.

J. Frankl. Inst., 1894, **138**, 306–317.

1894: 409. Jannasch and Locke. Bestimmung des Wassers in hygroskopischen Substanzen.

Ztschr. anorgan. Chem., 1894, **6**, 174–175; Chem. Centrbl., 1894, **65**, **II**, 840; Ber., 1894, 423 Ref.

1894: 410. WITT. Die chemische Industrie in den Vereinigten Staaten von Nord-Amerika im Jahre 1893.

Prometheus, 1894, **5**, Nr. 22; Chem. Ind., 1894, 21–23, 64–76, 99–109, 117–125, 155–164, 178–185; Wagner's Jsb., 1894, 540–541; Berg. u. H. Ztg., 1894, **53**, n. s. 48, 139; J. Soc. Chem. Ind., 1896, 580–581.

1894: 411. BEHRENS. Microchemical Analysis (on thorium), London, 1894, pp. 3, 97–99, 139, 231–233.

1894: 412. GENTSCH. Zur Geschichte der Gluhkörper für Gasglühlicht.

J. Gasbel, 1894, **37**, 193–195.

1894: 413. NOTICE. Das mineral, Monazit.

Berg. u. H. Ztg., 1894, **53**, n. s. **48**, 189.

1894: 414. LUNGE. Die Columbische Weltausstellung in Chicago (exhibit of rare earths).

Ztschr. angew. chem., 1894, 3–9, 42–46; Berg. u. H. Ztg., 1894, **53**, n. s. **48**, 95.

1894: 415. NOTE. The Condition and Prospects of Incandescent Gas-lighting.

J. Gas. L., 1894, **63**, 1171–1172.

1894: 416. EDITORIAL. Monazite.

The Mineral Industry, New York, 1894, **3**, 455–456.

1895: 417. SCHNEIDER. Ueber das Atomgewicht des Wismuths.

J. prakt. Chem. 1894, n. s. **50**, o. s. **158**, 461–472; Ber., 1895, 50–51 Ref.

1895: 418. ST. JOHN. Ueber die Vergleichung des Lichtemissionsvermögens der Körper bei hohen Temperaturen und über den Auer'schen Brenner.

Ann. der. Phys. Pogg., 1895, **56**, 433–450; J. Gasbel., 1896, 427; J. Gas L., 1896, **67**, 275; Gas World, 1896; Am. Gas Light J., 1896, **64**, 376; Berg. u. H. Ztg., 1896, **55**, n. s. **50**, 77; J. Phys., 1896, **5**, 367; Wagner's Jsb., 1896, **42**, 72–74; Chem. Ztg. Rep., 1895, **19**, 390; Rep. tech. jour.-lit., 1896, **18**, 31.

1895: 419. PALMER. Chromates of the rare earths. Chromates of Thorium.

Am. Chem. J., 1895, **17**, 374–379; Chem. News, 1895, **72**, 69–70; Ztschr. anorgan. Chem., 1895, **10**, 301; Ber., 1896, 345–346 Ref.; Chem. Centrbl., 1895, **66**, **II**, 14.

1895: 420. SCHMELCK. Norwegische Thorium und Yttriumhaltige Mineralien.

Ztschr. angew. Chem., 1895, 542–543; Der Gastechniker; Berg. u. H. Ztg., 1895, **54**, n. s. **49**, 379; Ztschr. prakt. Geol., 1895, 463; J. Gasbel., 1895, **38**, 795; J. Gas L., 1895, **66**, 1089–1090; Chem. Ztg., 1895, **19**, 1764; Ber., 1895, 970 Ref.; Chem. Centrbl., 1895, **66**, **II**, 944; Ztschr. anorgan. Chem., 1897, **14**, 311–312 Ref.; Rep. tech. jour.-lit., 1895, **17**, 219.

1895: 421. Smith and Harris. The action of phosphorus pentac
ride upon the dioxides of Zirconium and Thorium.

J. Am. Chem. Soc., 1895, **17**, 654–656; Bull. soc. chim. Paris,
[3], **16**, 225; Chem. Centrbl., 1895, **66**, **II**, 590–591; Rep.
jour.-lit., 1895, **17**, 242.

1895: 422. Gray. Zur Thoriumfrage.

Chem. Ztg., 1895, **19**, 705–706; J. Gas. L., 1895, **65**, 1144; J. Ga
1895, **38**, 571.

1895: 423. Thesen. Die technische darstellung von Thoriumnitr

Chem. Ztg., 1895, **19**, 2254; Berg u. H. Ztg., 1896, **55**, n. s. **50**, 7

1895: 424. Notice. L'exploitation de la thorite en Norvège.

Cosmos, 1895, [**4**], **33**, 385.

1895: 425. Clarke. The constitution of the silicates.

Bull. U. S. Geol. Survey, 1895, **125**, 1–109; S. of. M. Quar., 1898
88; Ztschr. Kryst., 1896–'97, **28**, 326–333.

1895: 426. Langlet. Om förekomster af helium i cleveit.

Öfv. K. Sv. Vet. Akad. Förh., 1895, No. **4**, 207–208, 211–213.

1895: 427. Nordenskiöld. Thorium oxalat (containing uranoxid

Öfv. K. Sv. Vet. Akad. Förh., 1895, No. **4**, 208.

1895: 428. Note. Thorerdenitrat.

Berg. u. H. Ztg., 1895, **54**, n. s. **49**, 429.

1895: 429. Gray. Auer'sches Gasglühlicht.

Ztschr. prakt. Geol., 1895, **3**, 219–220; Berg. u. H. Ztg., 1895, **54**,
49, 410–411; Ztschr. anorgan. Chem., 1897, **14**, 312 Ref.

1895: 430. Brögger and Vogt. Norwegens seltene Mineralien.

Oesterr. Ztschr., 1895, 49; Berg. u. H. Ztg., 1895, **54**, n. s. **49**, 1

1895: 431. Gentsch. Gasglühlicht, dessen Geschichte, Wesen
Wirkung.

Dingl. pol. J., 1895, **295**, 193–201, 217–224, 241–250, 265–272; Ber
H. Ztg., 1895, **54**, n. s. **49**, 145; J. Gasbel, 1895, **38**, 395; 1897,
34.

1895: 432. Ling. Zur Thoriumfrage.

Chem. Ztg., 1895, **19**, 1468–1469; J. Gas L., 1895, **66**, 534–535; J.
bel., 1895, **38**, 635; Chem. Centrbl., 1895, **66**, **II**, 590.

1895: 433. Vogt. Beitrage zur genetischen Classification der d
magnetische Differentiations-processe und der durch Pneu
tolyse entstandenen Erzvorkommen.

Ztschr. prakt. Geol., 1895, 367, 444, 465–484; Ztschr. Kryst., 1897–
29, 404–405.

1895: 434. Clarke. Third Year of Report of Committee on Atomic Weights. Results published in 1895.

J. Am. Chem. Soc., 1896, **18**, 197–214; Chem. News, 1897, **75**, 75–76, 88–90, 100–101, 110–111; Ztschr. physikal. Chem., 1896, **21**, 181–182; Beibl. Ann. der Phys., 1896, **20**, 929–930; 1897, **21**, 42, Lit. Uebers; 1898, **22**, 1–2; Fortschr. Phys., 1896, **52**^{1}, 115–116; Jsb. Chem., 1896, 3; Rep. tech. jour.-lit., 1896, **18**, 70.

1895: 435. Brauner. Cerium.

Chem. News, 1895, **71**, 283–285; J. Chem. Soc. Lond., 1895, **68**, **2**, 352–353; Ber., 1895, 905 Ref.; Chem. Centrbl., 1895, **66**, **II**, 283–284; Rep. tech. jour.-lit., 1895, **17**, 35.

1895: 436. Notice. Thoritfieber in der Stadt Krageroe.

Chem. Ztg., 1895, **19**, 560, 682.

1895: 437. Thorpe. Monazite, a mineral containing Helium.

Chem. News, 1895, **72**, 32; Ztschr. anorgan. Chem., 1897, **14**, 445 Ref.; Ztschr. Kryst., 1896–1897, **28**, 222; Ber., 1895, 904 Ref.; Chem. Centrbl., 1895. **66**, **II**, 456.

1895: 438. Gray. Thorithaltiges mineralien.

Ztschr. prakt. Geol., 1895, 219; Berg. u. H. Ztg., 1895, **54**, n. s. **49**, 410–411; Ztschr. anorgan. Chem., 1897, **14**, 312 Ref.; Chem. Centrbl., 1896, **67**, **I**, 214.

1895: 439. Glinzer. Ueber das Auer'sches Gasglühlicht.

Ztschr. angew. Chem., 1895, 185–188; J. Gasbel., 1895, **38**, 295–299, 310–313; Ztschr. prakt. Geol., 1895, **3**, 219–220; Chem. Centrbl., 1895, **66**, **I**, 904–906.

1895: 440. Ramsay. Helium, a gaseous constituent of certain minererals. Part I.

Roy. Soc. Lond. Proc., 1895, **58**, 81–89.

1895: 441. Bunte. Neuere Erscheinungen auf dem Gebiet der Gasbeleuchtung, (Argon, Thoriumoxyd, Acetylen und Benzol).

Verhandl. der 35 Jahresversammlung des Deutschen Vereins von Gas-und Wasserfächmännern in Köln 1895; J. Gasbel., 1895, **38**, 545–549, 561–565; J. Gas L., 1895, **66**, 877–878.

1895: 442. Note. Monazite and Incandescent Gas-lighting.

J. Gas L., 1895, **66**, 628–629.

1895: 443. Nitze. Monazite and Monazite Deposits in North Carolina.

Sixteenth Annual Rep. U. S. Geol. Survey, 1894–1895, pt. **4**, 667–693; Bulletin North Carolina Geol. Survey, 1895, No. **9**, pp. 47, 5 plates; J. Frankl. Inst., 1897, **144**, 127–133; Ztschr. prakt. Geol., 1895, **3**, 220; 1897, **5**, 228–229; Jour. Elisha Mitchell Sci. Soc., 1895, **12**, **2**, 38–48; Eng. and Min. Jour., 1895, **59**, 293; Trans. Amer. Inst. M. E., 1895, **25**, 40–43; Dingl. pol. J., 1897, **306**, 144; J. Soc. Chem. Ind., 1895, 405; 1897, 755; Berg. u. H. Ztg., 1895, **54**, n. s. **49**, 195; 1896, **55**, n. s. **50**, 327; Pop. Sci. News, 1897, 273; Ann. Gew., **39**, 127;

Ztschr. anorgan. Chem., 1897, **14**, 312 Ref.; Chem. News, 1895, **71**, 181; J. Gas L., 1897, **70**, 576; J. Gasbel., 1896, **39**, 88–89; 1897, **40**, 691; Chem. Centrbl., 1895, **66**. **I**, 1077; 1896, **67**, **I**, 665–666; 1897, **68**, **II**, 1112–1113; Ind. and Iron, 1897, **23**, 198; Jahrb. Min., 1897, **86**, **2**, 267–268 Ref.; Rep. tech. jour.-lit., 1897, **19**, 397; 1896, 440.

1895: 444. Carey Lea. Uber die Beziehung der Farben von Atom, Ion und Molekul.

Ztschr. angew. Chem., 1895, **9**, 312–328.

1895: 445. Moraht. Gerhard Krüss † mit Porträt.

Ztschr. anorgan. Chem., 1895, **8**, 243–252.

1895: 446. ——— The properties of Thorium nitrate.

Chem. Trade J., 1895, 165; J. Soc. Chem. Ind., 1895, 833.

1895: 447. Mason. Uses of Monazite in Europe.

U. S. Consular Reports, 1895, **48**, No. **176**, 170; J. Soc. Chem. Ind., 1895, 610–611.

1895: 448. Townes. Monazite in Brazil.

U. S. Consular Reports, 1895, **49**, No. **181**, 241.

1895: 449. Reports of Consuls Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith. Monazite in Foreign Countries.

U. S. Consular Reports, 1895, **48**, No. **179**, 541–551; J. Soc. Chem. Ind., 1895, 835–836.

1895: 450. Meyer. Die weitere Entwickelung der von Döbereiner und Pettenkofer erstrebten Systematik.

Ostwald's Klassiker der Exakten Wissenschaften, 1895, **66**, 27–34.

1895: 451. Behrens. Mikrochemische Methoden.

Verslagen en Mededeeling d. Kon. Akadem. v. Wetensch. te Amsterdam Natuurkund, Afd., 1882; reprinted in Ann. d. l'Ecole Polyt. de Delft, 1885, t. **I**.

1895: 452. Behrens. Anleitung zur mikrochemischen Analyse, 1895.

1895: 453. Ramsay, Collie, and Travers. Helium, a constituent of certain minerals.

J. Chem. Soc. Lond., 1895, **67**, 684–701; Chem. News, 1895, **71**, 151; Ber., 1896, 900–901 Ref.; Chem. Centrbl., 1895, **66**, **I**, 867; 1895, **66**, **II**, 455–456.

1895: 454. Mezger. The Monazite districts of North and South Carolina.

Trans. Am. Inst. M. E., 1895, vol. **25**, 822–826, 1036–1040; Ztschr. prakt. Geol., 1896, **4**, 166.

1895: 455. Westphal. Ueber das Leuchten des Gasglühlichtes.

J. Gasbel., 1895, **38**, 363.

1895: 456. Rammelsberg. Melanoceritgruppe.

Rammelsberg's Min. Chem., 1895, Zweites Suppl., 302–303.

1895: 457. Rammelsberg. Xenotime, Hitterö.

Rammelsberg's Min. Chem., 1895, Zweites Suppl., 137–139.

1895: 458. Drossbach. Zur Chemie der Gasglühlichtoxyde.

J. Gasbel., 1895, **38**, 481–483; J. Gas L., 1895, **65**, 534–535; Am. Gas Light J., 1895, **63**, 567–568; Chem. Centrbl., 1895, **66**, **II**, 667–668.

1895: 459. Drossbach. Zur Chemie der Gasglühlichtoxyde.

J. Gasbel., 1895, **38**, 581–583; J. Gas L., 1895, **66**, 1195–1196; Am. Gas Light J., 1895, **63**, 1050-1051.

1896: 460. Lindgren and Knowlton. The Mining Districts of the Idaho Basin and the Boise Ridge, Idaho.

Eighteenth Report of the U. S. Geol. Survey, 1896–1897, 617–794, and plates; Ztschr. prakt. Geol., 1899, 136–138; Jahrb. f. Min., 1899, **90**, **2**, 392–393 Ref.; J. Am. Chem. Soc., 1901, **23**, in Review of Am. Chem. Research, 1901, **7**, 90.

1896: 461. Mason. Auer-Welsbach patents and Monazite in Germany.

U. S. Consular Reports, 1896, **51**, **189**, 242–245; J. Soc. Chem. Ind. 1896, 626–627.

1896: 462. Tschernik. Ein unbekanntes Cer-mineral vom Kaukasus (Gouvernement Batum).

Jour. Russ. Chem. and Phys. Soc., 1896, **28**, 345–359.

1896: 463. Notice. Zu den Gasglühlichtprocessen.

Nach Beilage zur Vossischen Ztg.; Dingl. pol. J., 1896, **302**, 120.

1896: 464. Delafontaine. On some colloidal compounds of the rare metals.

Chem. News, 1896, **73**, 284; Ztschr. anorgan. Chem., 1897, **14**, 189 Ref.; Chem. Centrbl., 1896, **67**, **II**, 339; Ber., 1896, 1096 Ref.; Jsb. Chem., 1897, 1040–1041; Rep. tech. jour.-lit., 1896, 407.

1896: 465. Petterson. Contribution à l'étude des éléments des terres rares.

Bihang till Kongl. Sv. Vet. Akad. Handl., 1895–1896, **21**, Afd. **II**, No. **I**, 1–16 and plates; Monit. Sci. Quesneville, 1896, [**4**], **10**, **1**, 342–348; Ztschr. physikal. Chem., 1896, **19**, 169; Öfv. K. Sv. Vet. Akad. Förh., 1895, No. **1**, 1; Beibl. Ann. der. Phys., 1896, 231–232; Jsb. Chem., 1896, 538.

1896: 466. Ramsay and Collie. Helium and Argon. Part III. Experiments which show the Inactivity of these Elements.

Roy. Soc. Lond. Proc., 1896–1897, **60**, 3, 53–56; Chem. News, 1896, **73**, 259–260; Chem. Centrbl., 1896, **67**, **I**, 738–740; 1896, **67**, **II**, 147; Jsb. Chem., 1896, 82, 428.

1896: 467. **Witt.** Einiges über seltene erden.

Chem. Ind., 1896, **19**, 156–158, 367–368; J. Soc. Chem. Ind.,
580–581; Wagner's Jsb., 1896, 449–452; Ber., 1896, 625–627
Rep. tech. jour.-lit., 1896, 407.

1896: 468. **Notice.** Thorite en Norwége.

J. de pharm., 1896, [6], **4**, p. 2, Renseignements.

1896: 469. **Notice.** L'industrie des terres rares.

Revue Gen. Sci., 1896, 1074.

1896: 470. **Urbain.** Contribution à l'étude du thorium.

Bull. soc. chim. Paris, 1896, [**3**], **15**, 338, 347–349; Chem. News,
76, 110–111; J. Chem. Soc. Lond., 1897, **72**, **1**, 236; Ztschr. an
Chem., 1897, **14**, 214; S. of M. Quar., 1898, **19**, 214; Chem. Ce
1896, **67**, **1**, 887; Ber., 1896, 952–953 Ref.; Jsb. Chem., 1896,
Rep. tech. jour.-lit., 1896, 440.

1896: 471. **Moissan** and **Etard.** Sur les carbures d'yttrium e
thorium.

Bull. soc. chim. Paris, 1896, [**3**], **15**, 1271–1275; C. R., 1896, **122**
577; J. Chem. Soc. Lond., 1896, **70**, **2**, 422–423; 1897, **71**, **1**,
Chem. News, 1896, **73**, 164; Chem. Ztg., 1896, 241; Ztschr. an
Chem., 1897, **14**, 214-215; 1897, **16**, 236 Ref.; Ztschr. elektroc
1895–1896, **2**, 607; Tidsskrift för Fysik und Kemi, 1896, 408
Ber., 1896, 342–343 Ref.; Chem. Centrbl., 1896, **67**, **1**, 834;
Ann. der Phys., 1896, **20**, 826; Jsb. Chem., 1896, 468; Rep.
jour.-lit., 1896, **18**, 281, 440.

1896: 472. **Larsson.** Untersuchungen über Niob.

Ztschr. anorgan. Chem., 1896, **12**, 188–207; J. Chem. Soc. Lond.,
70, **2**, 564–565; Chem. Centrbl., 1896, **67**, **II**, 234–235; Jsb. C
1896, 608-611; Rep. tech. jour.-lit., 1896, **18**, 341.

1896: 473. **Dennis.** The separation of Thorium from the other
earths by means of Potassium Trinitride.

J. Am. Chem. Soc., 1896, **18**, 947–952; 1897, **19**, in Review of
Chem. Research, 1897, **3**, 25; Bull. soc. chim. Paris, 1897,
18, 197–198; J. Soc. Chem. Ind., 1896, 890; Chem. News,
74, 314-315; J. Gasbel., 1897, **40**, 729; Industries and Iron,
don, 1896, **21**, 247; Ztschr. anorgan. Chem., 1897, **13**, 412
1898, **18**, 400 Ref.; J. Chem. Soc. Lond., 1897, **72**, **2**, 232,
Revue de chim. ind., 1897, **8**, 282; Analyst, 1897, **22**, 51–52; Z
anal. Chem., 1899, **38**, 49–51; S. of M. Quar., 1897, **18**, 173; C
Centrbl., 1897, **68**, **1**, 128; Jsb. Chem., 1896, 2120; Rep. tech.
lit., 1896, 440.

1896: 474. **Barrière.** Lucium, a new element.

Chem. News, 1896, **74**, 159, 212–214, 259; J. de pharm., 1896, [
507; Rev. Sci., 1896, [**4**], **6**, 600; Pop. Sci. News, 1896, 248; C
Ztg. Rep., 1896, **20**, 265; Berg. u. H. Ztg., 1897, **56**, n. s. **51**
J. Gas L., 1896, **68**, 792; J. Gasbel., 1897, **40**, 43; Fortschr.
1896, **52**^{1}, 121–122; Chem. Centrbl., 1896, **67**, **II**, 886; S.
Quar., 1897, **18**, 176; Ztschr. anorgan. Chem., 1897, **15**, 456 R

1896: 475. Crookes. The alleged new element, Lucium.

Chem. News, 1896, **74**, 259–260; J. Gasbel., 1897, **40**, 43; J. Gas L., 1896, **68**, 1121; Ztschr. anorgan. Chem., 1897, **15**, 456 Ref.; Chem. Centrbl., 1897, **68**, **1**, 9; Jsb. Chem., 1896, 4.

1896: 476. Wyrouboff. Recherches sur les silicotungstates.

Bull. soc. franç. min., 1896, **19**, 219–354; J. Chem. Soc. Lond., 1897, **72**, **2**, 173–178; Ztschr. Kryst., 1897–1898, **29**, 659–678 Ref.; Chem. Centrbl., 1898, **69**, **II**, 90–93.

1896: 477. Lillard. Uses of Thorium.

Knowledge, 1896, 140; Pop. Sci. News, 1896, 249.

1896: 478. Phipson. A rare metal.

Knowledge, 1896, 140–141; J. Gas L., 1896, **67**, 1270.

1896: 479. Moissan. Sur la formation des carbures d'hydrogène gaseux et liquides par l'action de l'eau sur les carbures metalliques. Classification des carbures.

C. R., 1896, **122**, 1462–1467; Bull. soc. chim. Paris, 1896, [**3**], **15**, 1284–1289; Ztschr. elektrochem., 1896–1897, **3**, 134; Dingl. pol. J., 1897, **304**, 139–140; J. de pharm., 1896, [**6**], **4**, 223–229; Ztschr. anorgan. Chem., 1898, **16**, 236 Ref.; Ber., 1896, 613–614 Ref.; Chem. Centrbl., 1896, **67**, **2**, 342–343; Jsb. Chem., 1896, 472; Rep. tech. jour.-lit., 1896, **18**, 282.

1896: 480. Moissan. Étude des carbures metalliques.

Roy. Soc. Lond. Proc., 1896–1897, **60**, 6, 156–160; Jsb. Chem., 1896, 472.

1896: 481. Fresenius and Hintz. Über die Untersuchung der Thornitrate des Handels und die Trennung von Thorerde und Ceroxyd.

Ztschr. anal. Chem., 1896, **35**, 525–544; Ber., 1896, **29**, 1012; J. Soc. Chem. Ind., 1896, **15**, 702; Chem. News, 1896, **74**, 257; Ztschr. anorgan. Chem., 1897, **15**, 380 Ref.; Berg. u. H. Ztg., 1896, **55**, n. s. **50**, 385; Analyst, 1897, **22**, 49–51; Monit. Sci. Quesneville, 1897, [4], **11**, **1**, 598–605; Ztschr. angew. Chem., 1897, 121; Wagner's Jsb., 1896, **42**, 452, S. of M. Quar., 1897, **18**, 435; Chem. Centrbl., 1896, **67**, **II**, 756–758; Jsb. Chem., 1897, 690–692; Rep. tech. jour.-lit., 1896, 440.

1896: 482. Glaser. Estimation of Thoria. Chemical Analyses of Monazite sand.

J. Am. Chem. Soc., 1896, **18**, 782–793; Chem. Ztg. 1896, **20**, **2**, 612–614; J. Soc. Chem. Ind., 1896, 642, 675–677; Ztschr. anorgan. Chem. 1897, **15**, 380 Ref.; J. Chem. Soc. Lond., 1897, **72**, **2**, 190–191; Berg. u. H. Ztg., 1896, **55**, n. s. **50**, 345; Chem. News, 1897, **75**, 145–147, 157–158; S. of M. Quar., 1897, **18**, 436–437; Analyst, 1896, **21**, 274–277; Industries and Iron, London, 1896, **21**, 267, 289; Ber., 1896, 1170; Chem. Centrbl., 1896, **67**, **II**, 803–804; Jsb. Chem., 1896, 2119–2120; Rep. tech. jour.-lit., 1896, 440.

1896: 483. Söhren. Gasglühlicht.

J. Gasbel., 1896, **39**, 318–319.

1896: 484. Drossbach. (The influence of foreign oxides on the li
power of thorium mantles.)

Gastechniker; J. Gas L., 1896, **68**, 1018; J. Soc. Chem. Ind.
890; Rep. tech. jour.-lit., 1896, 30.

1896: 485. Söhren. Das Auer'sche Gasglühlicht.

J. Gasbel., 1896, **39**, 545–550, 561–566, 577–585; J. Soc. Chem
1896, **15**, 701–702; Wagner's Jsb., 1896, **42**, 74–76; Rep. tech
lit., 1896, **18**, 30.

1896: 486. Clarke. The Constants of Nature. Part V. A Re
lation of the Atomic Weights.

Smithsonian Misc. Coll., 1075; 1897, **38**, pp. vi, 370; Ztschr. ph
Chem., 1897, **23**, 187; Beibl. Ann. der Phys., 1897, **21**, 801;
Centrbl., 1897, **68**, **II**, 79.

1896: 487. Editorial. The radiating power of Welsbach mantl
terial.

Am. Gas Light J., 1896, **64**, 376.

1896: 488. Winkelmann and Straubel. Ueber einige Eigensc
der Röntgen'schen X-Strahlen.

Ann. der Phys. Wied., 1896, **59**, 324–336.

1896: 489. Drossbach. Zur Chemie der Monacit bestandtheile.

Ber., 1896, **29**, 2452–2455; J. Soc. Chem. Ind., 1896, 889–890;
ner's Jsb., 1896, **42**, 447–449; J. Gasbel., 1897, **40**, 43, 307;
anorgan. Chem., 1897, **15**, 457 Ref.; Jahrb. Min., 1897, **86**,
Ref.; Chem. Centrbl., 1896, **67**, **II**, 1085–1086; Jsb. Chem.
1025–1028; Rep. tech. jour.-lit., 1896, 440.

1896: 490. Fresenius. Lucium.

Chem. News, 1896, **74**, 269; Fortschr. Phys., 1896, **52**^{1}, 122.

1896: 491. Moissan. Étude de quelques carbures métalliques d
posables par l'eau froide.

Ann. chim. phys., 1896, [**7**], **9**, 302–337; Ztschr. anorgan.
1897, **14**, 172–178 Ref.; C. R., 1896, **122**, 362–363; Ber., 189
Ref.; Chem. Centrbl., 1896, **67**, **II**, 1082–1083; Jsb. Chem.
472; Rep. tech. jour.-lit., 1895, **18**, 282.

1896: 492. Delaunay. Succession des poids atomiques des
simples.

C. R., 1896, **123**, 600–603; J. Chem. Soc. Lond., 1897, **72**, **2**,
Ztschr. anorgan. Chem., 1897, **15**, 457–459 Ref.; Ber., 189
Ref.; Chem. Centrbl., 1896, **67**, **II**, 989–990; Jsb. Chem., 18

1896: 493. Phipson. On a new and abundant source of the rare oxides of thorium, cerium, yttrium, lanthanum, didymium, and zirconium from Norwegian granite.

Chem. News, 1896, **73**, 145; Bull. soc. chim. Paris, 1896, [**3**], **16**, 1756; J. Chem. Soc. Lond., 1896, **70**, **2**, 422; Ztschr. anorgan. Chem., 1897, **14**, 188; Ztschr. Kryst., 1898, **30**, 89; J. Gas L., 1896, **67**, 920; Chem. Centrbl., 1896, **67**, **1**, 1052; Jsb. Chem., 1896, 538; Rep. tech. jour.-lit., 1896, **18**, 30.

1896: 494. Wislicenus. Über aktivierte metalle (metallpaare) und die Verwendung des aktivierten Aluminiums zur Reduktion in neutraler Lösung.

J. prakt. Chem., 1896 [**2**], **54**, 18–65; Ztschr. anorgan. Chem., 1897, **16**, 229–230 Ref.; Ber., 1896, 946–948 Ref.; Chem Centrbl., 1896, **67**, **II**, 772–773; Jsb. Chem., 1896, 120–122.

1896: 495. Note. Metalle und metallisch-chemische Producte auf der Berliner Gewerbe Austellung. "Thorium nitrate."

Berg. u. H. Ztg., 1896, **55**, n. s. **50**, 225.

1896: 496. Note. Brazilian preferred to Carolina Monazite.

Eng. and Min. J., 1896, **62**, 78; Berg. u. H. Ztg., 1896, **55**, n. s. **50**, 328.

1896: 497. Prior. On the chemical composition of Zirkelite.

Min. Mag., 1897, **11**, 180–183; Jahrb. Min., 1898, **89**, **2**, 196 Ref.; Ztschr. Kryst., 1898–1899, **31**, 186–187; S. of M. Quar., 1899, **20**, 208; Fortschr. Phys., 1898, **54**^{1}, 299; Dana's Min., 1899, 6th ed., Appendix I, p. 75; Chem. Gentrbl., 1898, **68**, **II**, 1066.

1896: 498. Bunte. Ueber Glühkörper.

Berliner Gewerbeausstellung, 36 Jahresversammlung des Deutschen Vereins von Gas-und Wasserfächmännern, Berlin, 1896; Offic Ausstell Nachr., 1896, 19th June; Berg. u. H. Ztg., 1896, **55**, n. s. **50**, 225.

1896: 499. Kosmann. Monazit, Kosmium oxide.

Berg. u. H. Ztg., 1896, **55**, n. s. **50**, 225.

1896: 500. Von Knorre. Anwendung von Metallen und Metalloxyden zur Erzeugung von Glühlicht.

Berg. u. H. Ztg., 1896, **55**, n. s. **50**, 352–353.

1896: 501. Note. The Incandescent Gas Light Co. *versus* The De Marc Incandescent Gas Light System (Limited) and Others.

J. Gas L., 1896, **67**, 571–579, 635–640, 703–706, 757–761, 872–877.

1896: 502. Lewes. Incandescent Gas Lighting.

J. Gas L., 1896, **67**, 1104–1110, 1152–1156; Rep. tech. jour.-lit., 1896, **18**, 30.

1896: 503. Note. Thorium nitrate.

J. Gas L., 1896, **68**, 455.

1896: 504. Notice. The Welsbach patents in Germany. Decisi
Supreme Court.

J. Gas L., 1896, **68**, 468–469.

1896: 505. Von Knorre. Ueber die Entwickelungsgeschichte des
glühlichts mit Demonstrationen.

Verhandl. d. Vereins zur Beförderung des Gewerbfleisses, Sitzung
1896, **75**, 156–170; Monit. Sci. Quesneville, 1897 [**4**], **11**, **1**, 215-
Rep. tech. jour.-lit., 1896, **18**, 30.

1896: 506. Notice. The Incandescent Gas Light Co. *versus* The M
Incandescent Lighting Co., Limited.

J. Gas L., 1896, **68**, 1019.

1896: 507. Barrows. The Welsbach Light.

Am. Gas Light J., 1896, **64**, 410–413; Rep. tech. jour.-lit., 1896, **1**

1896: 508. Killing. Ueber Gasglühlicht, das Leuchten und die
sammensetzung der Glühkörper.

J. Gasbel., 1896, **39**, 697–699; J. Gas L., 1896, **68**, 1128–1129; Am
Light J., 1896, **65**, 934–935; Chem. Ztg., 1896, 497–499; J.
Chem. Ind., 1896, 794; Gas World, 1896; Naturw. Rundschau.,
13, 69–70; Beibl. Ann. der Phys., 1898, **22**, 313; Chem. Cen
1897, **68**, **I**, 213–214; Jsb. Chem., 1896, 77; 1897, 687; Rep.
jour.-lit., 1896, **18**, 30.

1896: 509. Lockyer. On the unknown lines observed in the Sp
of certain minerals.

Roy. Soc. Lond. Proc., 1896–1897, **60**, 133–143; Ztschr. Kryst.,
30, 87.

1896: 510. Gladstone. The relation between the refraction of
elements and their chemical equivalents.

Roy. Soc. Lond. Proc., 1896–1897, **60**, 140–146.

1896: 511. Preyer. Argon and Helium im System der Element

Ber., 1896, **29**, 1040–1041; J. Chem. Soc. Lond., 1896, **70**, **2**, 418-
Chem. Centrbl., 1896, **67**, **I**, 1185; Jsb. Chem., 1896, 3.

1896: 512. Retgers. Ueber die Stellung des Tellurs im periodi
system.

Ztschr. anorgan. Chem., 1896, **12**, 98–117; Ber., 1896, 631–632
Chem. Centrbl., 1896, **67**, **II**, 10–11; Jsb. Chem., 1896, 6.

1896: 513. ———. Entscheidung des Reichsgerichtes in Sache
Auer-patente.

J. Gasbel., 1896, **39**, 506.

1896: 514. ———. Die Urtheilsbegründung des Reichsgericht
Sachen der Auer-patente.

J. Gasbel., 1896, **39**, 516–522; Rep. tech. jour.-lit., 1896, **18**, 31.

1897 : 528. Wenghöffer. Über Gasglühlicht und die zu demselben benutzten Stoffe.

B. Pharm. Ges., 1897, **7**, Heft. **3**, 85–96, Sonderabdr; Chem. Centrbl., 1897, **68**, **1**, 1108–1109; Wagner's Jsb., 1897, **43**, n. s. **28**, 521–524.

1897 : 529. Führse. Über krystallisiertes Thoriumnitrat.

Ztschr. angew. Chem., 1897, 97, 115–116; Bull. soc. chim. Paris, 1897, [**3**], **18**, 1027; J. Chem. Soc. Lond., 1897, **72**, **2**, 377; Jahrb. Min., 1898, **2**, 369; J. Soc. Chem. Ind., 1897, 429–430, 441; Wagner's Jsb., 1897, **43**, n. s. **28**, 524; J. Gasbel., 1897, **40**, 225; Ztschr. anorgan. Chem., 1898, **18**, 237–238 Ref.; Chem. Centrbl., 1897, **68**, **1**, 580; Jsb. Chem., 1897, 692; Rep. tech. jour.-lit., 1897, **19**, 423.

1897 : 530. Delafontaine. On the separation of Thoria from Zirconia.

Chem. News, 1897, **75**, 230; J. Chem. Soc. Lond., 1897, **72**, **2**, 377; Bull. soc. chim. Paris, 1898, [3], **20**, 69; Ztschr. anorgan. Chem., 1898, **18**, 237, 400 Ref.; S. of M. Quar., 1897, **18**, 435; Chem. Centrbl., 1897, **68**, **II**, 70–71; Jsb. Chem., 1897, 686, 1039; Rep. tech. jour.-lit., 1897, **19**, 424, 471.

1897 : 531. Lindgren. Monazite from Idaho.

Eighteenth Ann. Rep. U. S. Geol. Survey, 1896–1897, part **III**, 617–794; Am. J. Sci., 1897 [**4**], **4**, 63–64; J. Soc. Chem. Ind., 1897, 719, 755; J. Chem. Soc. Lond., 1898, **74**, **2**, 123; Eng. and Min. J., 1897, **64**, 69; Jahrb. Min., 1898, **2**, 393–394; S. of M. Quar., 1899, **20**, 203–204; Ztschr. Kryst., 1898–1899, **31**, 295; Ztschr. prakt. Geol., 1899, **7**, 147; J. Am. Chem. Soc., 1901, **23**, in Review of Am. Chem. Research, 1901, **7**, 90; Chem. Centrbl., 1897, **68**, **II**, 600.

1897 : 532. Schützenberger and Boudouard. Sur les térres du groupe yttrique contenues dans les sables monazités.

C. R., 1896, **123**, 782–788; Bull. soc. chim. Paris, 1898 [**3**], **19**, 227–236; J. Chem. Soc. Lond., 1899, **76**, **2**, 367; Chem. News, 1898, **77**, 193–195, 204–206; Ztschr. anorgan. Chem., 1897, **16**, 231 Ref.; J. Gasbel., 1898, **41**, 387; Chem. Centrbl., 1897, **68**, **1**, 17; 1898, **69**, **1**, 879; Jsb. Chem., 1897, 1039–1040; Rep. tech. jour.-lit., 1898, **20**, 658.

1897 : 533. Schutzenberger and Boudouard. Rechérches sur les térres contenant dans les sables monazités.

C. R., 1897, **124**, 481–486; Bull. soc. chim. Paris, 1898, [**3**], **19**, 236–244; Ztschr. anorgan. Chem., 1897, **16**, 235 Ref.; Chem. News, 1898, **77**, 220–221, 229–231; J. Chem. Soc. Lond., 1899, **76**, **2**, 367; J. Soc. Chem. Ind., 1897, 429, 441; J. Gasbel., 1898, **41**, 10–11; Chem. Centrbl., 1897, **68**, **I**, 794–795; 1898, **69**, **I**, 879; Jsb, Chem., 1897, 1030–1031; Rep. tech. jour.-lit., 1897, **19**, 396, 397.

1897 : 534. Merle. Les terres rares et l'incandescence par le gaz.

Monit. Sci. Quesneville, 1897, [**4**], **11**, **1**, 257–269, 346–361; Ztschr. anorgan. Chem., 1897, **15**, 457 Ref.; Rep. tech. jour.-lit., 1897, **19**, 28, 397.

1897 : 535. Brögger. Ueber den Mossit und über das Krystallsystem des Tantalits (Skogbölit) aus Finnland.

Skrifter udgivne af Videnskabsselskabet i Christiania, 1897, **I**, mathematisk-naturvidenskabelig Klasse, No. **7**, 1–19; Ztschr. Kryst., 1898–1899, **31**, 315–317; Fortschr. Phys., 1898, **54**^{1}, 299; Jahrb. Min., 1899, **I**, 214–218; Dana's Min., 1899, Appendix to 6th ed., p. 48.

1897 : 536. Krüss. Zur Chemie des Thoriums.

Ztschr. anorgan. Chem., 1897, **14**, 361–366; J. Chem. Soc. Lond., 1897, **72**, **2**, 456–457; Bull. soc. chim. Paris, 1898, [**3**], **20**, 119, 120; Chem. Centrbl., 1897, **68**, **II**, 252; Jsb. Chem., 1897, 688–689; Rep. tech. jour.-lit., 1897, **19**, 423.

1897 : 537. Drossbach. Über die sogenannte Lumineszenz.

J. Gasbel., 1897, **40**, 174; Chem. Centrbl., 1897, **68**, **II**, 324; Jsb. Chem., 1897, 687.

1897 : 538. Lesinsky and Gundlich. Über Thoriumverbindungen. Vorläufige Mitteilung.

Ztschr. anorgan. Chem., 1897, **15**, 81–83; J. Chem. Soc. Lond., 1897, **72**, **2**, 499; Bull. soc. chim. Paris, 1898, [**3**], **20**, 120; J. Gasbel., 1897, **40**, 761; Chem. Centrbl., 1897, **68**, **II**, 790–791; Jsb. Chem., 1897, 689; Rep. tech. jour. lit., 1897, **19**, 423.

1897 : 539. Clarke. Fifth Annual Report of Committee on Atomic Weights. Results published in 1897.

J. Am. Chem. Soc., 1898, **20**, 163–173; 1898, **20**, in Review of Am. Chem. Research, 1898, **4**, 54; J. Chem. Soc. Lond., 1898, **74**, **2**, 566; Chem. News, 1898, **77**, 239–241; Wagner's Jsb., 1898, **44**, 436–437; Ztschr. physikal. Chem., 1901, **36**, 120–121; Fortschr. Phys., 1898, **54**^{1}, 142–144; Rep. tech. jour.-lit., 1898, **20**, 102–103.

1897 : 540. Bunte. Gasglühlicht und Acetylen und die neuere Entwickelung der Flammenbeleuchtung.

Vortrag auf der 37 Jahresversammlung des Deutschen Vereins von Gas-und Wasserfächmännern zu Leipzig, 1897; J. Gasbel., 1898, **41**, 17–24; J. Gas. L., 1898, **71**, 398–399, 477–478; Ber., 1898, **31**, 5–25; Chem. News, 1898, **77**, 151; Ztschr. physikal. Chem., 1899, **28**, 745–746; Ztschr. angew. Chem., 1898, 844–845; Ztschr. anorgan. Chem., 1899, **20**, 142; Fortschr. Phys., 1897, **53**^{1}, 194–195; 1898, **54**^{1}, 188–189; Dingl. pol. J., 1897, **306**, 143; J. Chem. Soc. Lond., 1898, **74**, **1**, 218–220; Monit. Sci. Quesneville, 1899, [**4**], **13**, **1**, 50; Beibl. Ann. der Phys., 1898, 313–314; J. Soc. Chem. Ind., 1898, 229-230; Chem. Centrbl., 1897, **68**, **II**, 1123–1124; 1898, **69**, **I**, 537–538; Jsb. Chem., 1897, 688, 1034; Rep. tech. jour.-lit., 1898, **20**, 42.

1897 : 540*a*. Bunte. Über Gasglühlicht und Acetylen.

J. Gasbel., 1897, **40**, 437–438.

1897 : 541. Moissan and Étard. Préparation et propriétés du carbure et de la fonte de thorium.

Ann. chim. phys., 1897, [**7**], **12**, 427–432; J. Chem. Soc. Lond., 1899, **76**, **2**, 227; Ztschr. anorgan. Chem., 1898, **18**, 237 Ref.; Chem. Centrbl, 1897, **68**, **II**, 1134–1135; Jsb. Chem., 1897, 689–690; Rep. tech. jour.-lit., 1897, **19**, 424.

1897: 542. Wyrouboff and Verneuil. Sur la purification du cerium.

C. R., 1897, **124**, 1230–1233; Ztschr. anorgan. Chem., 1898, **18**, 236 Ref.; Chem. Ztg., 1897, 477; J. Soc. Chem. Ind., 1897, 663, 696, 822; Chem. News., 1897, **75**, 292–293; J. Gasbel., 1897, **40**, 570; S. of M. Quar., 1898, **19**, 213; Chem. Centrbl., 1897, **68**, **II**, 98–99; Revue de chim. ind., 1897, **8**, 210–212; Rep. tech. jour.-lit., 1897, **19**, 397.

1897: 543. Moissan. "Sur la preparation de l'oxyde de cérium."

C. R., 1897, **124**, 1233–1234; J. Soc. Chem. Ind., 1897, 663, 696; Ztschr. anorgan. Chem., 1898, **18**, 237 Ref.; Chem. Centrbl., 1897, **68**, **II**, 99.

1897: 544. Haber. Beitrag zur kenntniss einiger seltenen erden.

Sitzungsber. Akad. d. Wien. Math.-naturw. Kl., 1897, **106**, Abth. **II***b*, 690–702; Monatsh. Chem., 1897, **18**, 687–699; J. Chem. Soc. Lond., 1898, **74**, **2**, 295–296; Analyst, 1898, **23**, 135–137; Jahrbuch Chem., 1898, **8**, 82; Chem. Ztg. Rep., 1898, 66; J. Gasbel., 1898, **41**, 421; Ztschr. anorgan. Chem., 1898, **18**, 238 Ref.; Chem. Centrbl., 1898, **69**, **I**, 657–658; Jsb. Chem., 1897, 1037–1039; Rep. tech. jour.-lit., 1897, **19**, 396–397.

1897: 545. Scheurer and Brylinski. Teinture des matières colorantes sur 19 mordants métalliques.

Bull. Soc. Ind. Mulhouse, 1897, **67**, 161–23^{1}, Résumés des séances et procès verbaux, pp. 64, 65, 68–69; J. Soc. Chem. Ind., 1897, 911.

1897: 546. Wyrouboff and Verneuil. Sur la purification et sur le poids atomique du cérium.

C. R., 1897, **124**, 1300–1303; Bull. soc. chim. Paris, 1897, [**3**], **17**, 578, 581, 679–690, 1014; Chem. News, 1897, **76**, 137–139, 153–155; Ztschr. anal. Chem., 1899, 679–680; Ztschr. anorgan. Chem., 1898, **18**, 237 Ref.; 1899, **20**, 159–160; Beibl. Ann. der Phys., 1898, 3–4; J. Gasbel., 1898, **40**, 538; Chem. Centrbl, 1897, **68**, **II**, 176–177; Jsb. Chem., 1897, 1028–1030, 1033; Rep. tech. jour.-lit., 1897, **19**, 397; 1899, **21**, 112.

1897: 547. Krüss and Palmaer. Zur Chemie des Thoriums.

Öfv. K. Sv. Vet. Akad. Förh., 1897, **3**, 141–147.

1897: 548. Brauner. Contributions to the chemistry of the rare earth metals.

Chem. Soc. Lond. Proc., 1897–1898, No. **191**, 67–68; Brit. Assoc. Adv. Sci., 1897, **67**, 608; Chem. News, 1898, **77**, 160; Chem. Ztg., 1898, **22**, **I**, 272; Jahrbuch Chem., 1898, **8**, 82; J. Gasbel., 1898, **41**, 387; J. Soc. Chem. Ind., 1898, 372; Chem. Centrbl., 1898, **69**, **I**, 918.

1897: 549. Brauner. On the chemistry and atomic weight of thorium.

Chem. Soc. Lond. Proc., 1897–1898, No. **191**, 68–69; Brit. Assoc. Adv. Sci., 1897, **67**, 609; Chem. News, 1898, **77**, 160; Nature, 1897, **56**, 462; J. Gasbel., 1898, **41**, 387; Chem. Centrbl., 1898, **69**, **I**, 918–919.

1897 : 550. Holmquist. Synthetische Studien über die Perowskit und Pyrochlormineralien.

Bull. Géol. Inst. Upsala, 1897, **3**, No. **5**, 181-262; Inaugural Dissertation, Upsala, 1897, pp. 88, and 3 plates; J. Chem. Soc. Lond., 1898, **74**, **2**, 388-389; Ztschr. anorgan. Chem., 1898, **18**, 84-85; Jahrb. Min., 1898, **2**, 399-409; Ztschr. Kryst., 1898-1899, **31**, 305-309; Fortschr. Phys., 1898, **54**^{1}, 302-303; Chem. Centrbl., 1898, 69, **II**, 1068.

1897 : 551. Urbain. L'acétylacétonate d'uranyle ainsi que des acétylacétonates des terres de la série du Didyme.

Bull. soc. chim. Paris, 1897 [**3**], **17**, 98.

1897 : 552. Von Knorre. Über die Bestimmung des Cers bei Gegenwart von seltenen Erden.

Ztschr. angew. Chem., 1897, 685-688, 717-725; J. Soc. Chem. Ind., 1898, 68, 72, 443, 491-492; J. Chem. Soc. Lond., 1898, **74**, **2**, 311; Ztschr. anorgan. Chem., 1898, **18**, 402 Ref.; Monit. Sci. Quesneville, 1898, [**4**], **12**, **2**, 592-593; Analyst, 1898, **23**, 191; J. Gasbel., 1898, **41**, 199; Chem. Centrbl., 1897, **68**, **II**, 1158; 1898, **69**, **1**, 142-144; Jsb. Chem., 1897, 1034-1035.

1897 : 553. Shapleigh. Notes on Lucium.

J. Frankl. Inst., 1897, **144**, 68-70; Chem. News, 1897, **76**, 41; Ztschr. anorgan. Chem., 1898, **18**, 217 Ref.; Fortschr. Phys., 1897, **53**^{1}, 123-124; Chem. Centrbl, 1897, **68**, **II**, 468; Jsb. Chem., 1897, 1042; Rep. tech. jour.-lit., 1897, **19**, 397.

1897 : 554. Rydberg. Studien über die Atomgewichtszahlen.

Ztschr. anorgan. Chem., 1897, **14**, 66-102; Chem. Centrbl., 1897, 68, **I**, 676-677; Jsb. Chem., 1897, 9-10.

1897 : 555. Maratta. Discovery of Zircons in Tasmania.

U. S. Consular Rep., 1897, **53**, No. **198**, 364-367; J. Soc. Chem. Ind., 1897, 367.

1897 : 556. Wyrouboff and Verneuil. Sur l'unité élémentaire du corps appelé cérium.

C. R., 1897, **125**, 950-951; J. Chem. Soc. Lond., 1898, **74**, **2**, 222; Ztschr. anorgan. Chem., 1899, **19**, 368; Chem. Centrbl., 1898, **69**, **1**, 235; Jsb. Chem., 1897, 1032.

1897 : 557. Boudouard. Sur le cérium.

C. R., 1897, **125**, 1096-1097; J. Chem Soc. Lond., 1898, **74**, **2**, 294; Monit. Sci. Quesneville, 1898, [**4**], **12**, **1**, 73; Ztschr. anorgan. Chem., 1899, **19**, 368; Bull. soc. chim. Paris, 1898 (**3**), **19**, 59-64; Chem. Centrbl., 1898, **69**, **1**, 235; Jsb. Chem., 1897, 1032; Rep. tech. jour.-lit, 1898, **20**, 102.

1897 : 558. Wyrouboff and Verneuil. Sur le poid atomique du cérium.

C. R., 1897, **125**, 1180-1181; J. Chem. Soc. Lond., 1898, **74**, **2**, 294; Ztschr. anorgan. Chem., 1899, **19**, 368; Chem. Centrbl., 1898, **69**, **1**, 311; Jsb. Chem., 1897, 1032-1033; Rep. tech. jour.-lit., 1897, **19**, 397.

1897 : 559. ———. Pyrochlor.

Gmelin-Kraut, Handb. anorg. Chemie, 1897, **2**^{2}, pages 85–86.

1897 : 560. Preis. Rozbory některých českých mineralů.

Sitzungsber. Königl. Böhm. Gesells. d. Wiss., 1897, No. **19**, pp. 5; J. Chem. Soc. Lond., 1899, **76**, **2**, 668; Ztschr. Kryst., 1898–1899, **31**, 526; Jahrb. Min., 1899, **I**, 427; Chem. Centrbl., 1899, **70**, **II**, 221.

1897 : 561. Ramsay and Zilliacus. Monazit of Impilaks.

Öfversigt af Finska-Vetenskaps Societetens Förhandlingar, 1898, 39; pp. 9, mit 3 Abbildungen im Text. Ztschr. Kryst., 1898–1899, **31**, 317–318; J. Chem. Soc. Lond., 1899, **76**, **2**, 562; J. Gasbel., 1899, **42**, 516; Jahrb. Min., 1900, **I**, 17 Ref.; Chem. Centrbl., 1899, **70**, **II**, 75–76; 1900, **I**, 309–310.

1897 : 562. ——— Aflidne ledamöter. C. V. Blomstrand.

Geol. Fören Förh., 1897, **19**, 537–555.

1897 : 563. Loew. Versuch einer graphischen Darstellung für das periodische System der Elemente.

Ztschr. physikal. chem., 1897, **23**, 1–12; Chem. Centrbl., 1897, **68**, **II**, 89; Jsb. Chem., 1897, 11; Rep. tech. jour.-lit., 1896, **19**, 68.

1897 : 564. Bandsept. Brûleurs et manchons pour l'incandescence par le gaz. Bruxelles, Impr. Universitaire, S. H. Moreau, 1897, Br. in —8°.

Gaz., 1897, **40**, 133–134; J. Gas L., 1897, **67**, 604–607; J. Gasbel., 1897, **40**, 671; Résumés des Communications, Société Française de Physique, 1898, 49; Rep. tech. jour.-lit., 1897, **19**, 28.

1897 : 565. Hohmann. Zur Theorie des Gasglühlichtes.

J. Gasbel., 1897, **40**, 456–457; J. Soc. Chem. Ind., 1897, 789; Rep. tech. jour. lit., 1897, **19**, 28.

1897 : 566. Moscheles-Friedenau. Die Hypothese des Gasglühlichtes.

Ztschr. Beleucht., 1897, 102–104; J. Gas L., 1897, **69**, 1237–1238; Rep. tech. jour.-lit., 1897, **19**, 28.

1897 : 567. Kemper. Ueber die Entwickelung der Gasglühlicht Strassenbeleuchtung.

J. Gasbel., 1897, **40**, 513–517, 529–532; Rep. tech. jour.-lit., 1897, **19**, 29.

1897 : 568. Mendeléeff. The Principles of Chemistry, 1897, 6th edition (English transl.).

1897 : 569. Note. Neues von den Geschäftspraktiken der Auergesellschaft.

Ztschr. Beleucht., 1897, **3**, 203.

1897 : 570. Note. Gasglühlicht Industrie.

Ztschr. Beleucht., 1897, **3**, 6–7, 37, 136.

1897 : 571. Note. Gasglühlicht-Prozesse.

Ztschr. Beleucht., 1897, **3**, 181.

1897: 572. Klason. Christian Wilhelm Blomstrand.
Ber., 1897, **30**, 3227–3241.

1897: 573. Note. Neues Verfahren zur Abscheidung von Thoriumhydrat bezw. nitrat aus den Rohmaterialen.
Ztschr. Beleucht., 1897, **3**, 83.

1897: 574. Note. Glühkörper, welche aus vanadinhaltigem Zirkonoxyd bezw. Thoroxyd bestehen.
Ztschr. Beleucht., 1897, **3**, 222–223.

1897: 575. Krebs. Zur Theorie des Gasglühlichtes.
Ztschr. Beleucht, 1897, **3**, 131–132; J. Gasbel., 1897, **40**, 552–553.

1897: 576. Lux. Zur Theorie des Gasglühlichtes.
Ztschr. Beleucht., 1897, **3**, 255.

1897: 577. Lewes. The Use of Gas for Domestic Lighting. Lecture II.
J. Soc. Arts, 1896–1897, **45**, 101–111; J. Soc. Chem. Ind., 1897, 227; J. Gasbel., 1897, **40**, 182–185.

1897: 578. Drossbach. Zur Chemie des Thoriums.
Ztschr. Beleucht., 1897, **3**, 303; J. Gasbel., 1897, **40**, 761.

1897: 579. Killing. Die Hypothese des Gasglühlichts.
J. Gasbel., 1897, **40**, 339–340; Chem. Centrbl., 1897, **68**, **II**, 8; Fortschr. Phys., 1897, **53**^{1}, 195; Jsb. Chem., 1897, 688.

1897: 580. Drossbach. Zur Hypothese des Gasglühlichts.
Ztschr. Beleucht., 1897, 3, 233.

1897: 581. Fronstein and Mai. Verfahren zur Gewinnung eines ca 50 Prozent Thorerde enthaltenden Materiales aus Monazitsand.
Ztschr. Beleucht., 1897, **3**, 358; Patent Blatt., **18**, 625; D. R. Patent 93,940, Kl. 12, August 5, 1896; J. Gasbel., 1898, **41**, 115; Ztschr. angew. Chem., 1897, 642; Chem. Centrbl., 1897, **68**, **II**, 1087; Jsb. Chem., 1897, 686–687.

1897: 582. Lohse. Untersuchung des violetten Theils einiger linienreicher Metallspectra.
Sitzungsber. Königl. Akad. d. Wiss. Berlin, 1897, **I**, 179–197.

1897: 583. Tassin. Catalogue of the Series illustrating the Properties of Minerals.
Smithsonian Institution. Report of the U. S. National Museum for 1897, **1**, 647–688; Jahrb. Min., 1901, **93**, 174–175.

1897: 583*a*. Winkler. Ueber die Entdeckung neuer Elemente im Verlaufe der letzten fünfundzwanzig Jahre und damit zusammenhängende Fragen.
Ber., 1897, **30**, 6–21.

1897: 583*b*. Notice. Glühlichtprocesse.
J. Gasbel., 1897, **40**, 445.

1897: 583*c*. Krebs. Zur Theorie des Gasglühlichts (in reference to article in Ztschr. Beleucht., 1897, **3**, 131).

J. Gasbel., 1897, **40**, 552–553.

1897: 583*d*. Bunte. (Reference to above article.)

J. Gasbel., 1897, **40**, 553.

1898: 584. Wyrouboff and Verneuil. Sur la séparation du thorium et des terres de la cérite.

Rev. chim. analyt. appl., 1898, **6** [**7**], 112, 113; C. R., 1898, **126**, **I**, 340–343; J. Chem. Soc. Lond., 1898, **74**, **2**, 339–340, 410; Chem. News, 1898, **77**, 97–98; Monit. Sci. Quesneville, 1898, [**4**], **12**, **I**, 228–229; S. of M. Quar., 1898, **19**, 432–433; Analyst, 1898, **23**, 164; Chem. Ztg., 1898, **22**, **I**, 105; J. Soc. Chem. Ind., 1898, 265; Jahrbuch Chem., 1898, **8**, 82; Chem. Centrbl., 1898, **69**, **1**, 529–530; Rep. tech. jour.-lit., 1898, **20**, 102, 704.

1898: 585. Wyrouboff and Verneuil. Sur la séparation du thorium et des terres de la cérite.

Bull. soc. chim. Paris, 1898, [**3**], **19**, 219–227; Chem. News, 1898, **77**, 245–246, 254–255; S. of M. Quar., 1899, **20**, 307–308; Chem. Centrbl., 1898, **69**, **I**, 905; Rep. tech. jour.-lit., 1898, **20**, 102, 704.

1898: 586. Wyrouboff and Verneuil. Sur l'extraction industrielle de la thorine.

C. R., 1898, **127**, 412–414; J. Soc. Chem. Ind., 1898, 1068; J. Chem. Soc. Lond., 1899, **76**, **2**, 105; Chem. News, 1898, **78**, 303; Chem. Ztg., 1898, **22**, **2**, 808–809, 1049; Revue Sci., 1898, [**4**], **10**, 472; Monit. Sci. Quesneville, 1898, [**4**], **12**, **2**, 837; Progressive Age, 1899, **17**, 57; Chem. Centrbl., 1898, **69**, **II**, 833; Rep. tech. jour.-lit., 1898, **20**, 704.

1898: 587. Possetto. (Qualitative separation of metals of the rare earth groups.)

Giorn. Farm. Chim. Turin., **48**, 49–54; Giorn. di Farm. di Trieste, 1898, **3**, 70; Chem. Ztg. Rep., 1898, 135–136; Analyst, 1898, **23**, 246–247; J. Soc. Chem. Ind., 1898, 490; Jahrbuch Chem., 1898, **8**, 61; Chem. Centrbl., 1898, **69**, **I**, 634–635.

1898: 588. Truchot. Les Gisements et l'Extraction de la Thorite, de la Monazite et du Zircon.

Revue Gen. Sci., 1898, 144–149; Chem News, 1898, **77**, 134–135, 145–147; J. Chem. Soc. Lond., 1898, **74**, **2**, 437–438; J. Gas L., 1898, **72**, **2**, 745; Ztschr. anorgan. Chem., 1899, **19**, 369; Rep. tech. jour.-lit., 1898, **20**, 704.

1898: 589. Hintz and Weber. Ueber die Untersuchung der Glühkörper des Handels.

Ztschr. anal. chem., 1898, **37**, 94–111; J. Soc. Chem. Ind., 1898, 337, 378; Analyst, 1899, **24**, 20–22; S. of M. Quar., 1898, **19**, 431, 432; Chem. News, 1898, **77**, 249; 1899, **79**, 25–26; J. Chem. Soc. Lond., 1898, **74**, **2**, 339, 353; Monit. Sci. Quesneville, 1898, [**4**], **12**, **2**, 869–870; Wagner's Jsb., 1898, **44**, 426; Ztschr. angew. Chem., 1898, 1021; Chem. Centrbl., 1898, **69**, **I**, 796–797; Fortschr. Phys., 1898, **54**, **I**, 189–190; Rep. tech. jour.-lit., 1898, **20**, 43.

1898: 590. Muthman and Rolig. Über Trennung der Ceritmetalle und die Löslichkeit ihrer Sulfate in Wasser.

Ber., 1898, **31**, 1718–1731; Bull. soc. chim. Paris, 1899, [**3**], **22**, 40–41; J. Chem. Soc. Lond., 1898, **74**, **2**, 518; J. Soc. Chem. Ind., 1898, 789–790; S. of M. Quar., 1899, **21**, 77–78; Ztschr. anorgan. Chem., 1899, **20**, 161–162; Jahrbuch Chem., 1898, **8**, 80–81; Beibl. Ann. der Phys., 1898, 825–826; Chem. Centrbl., 1898, **69**, **II**, 408–409; Rep. tech. jour.-lit., 1898, **20**, 658.

1898: 591. Boudouard. Sur les sables monazites de la Caroline du Nord.

Bull. soc. chim. Paris, 1898, [**3**], **19**, 10–13; J. Soc. Chem. Ind., 1898, 265; Chem. Centrbl., 1898, **69**, **I**, 435; Rep. tech. jour.-lit., 1898, **20**, 658.

1898: 592. Richards. A table of atomic weights.

Proc. Am. Acad. Arts and Sci., 1898, **33**, 293–302, 511, 515; Am. Chem. J., 1898, **20**, 543–554; J. Chem. Soc. Lond., 1898, **74**, **2**, 566–567; Ztschr. anorgan. Chem., 1899, **19**, 342; 1899, **20**, 379; J. Am. Chem. Soc., 1898, **20**, in Review of Am. Chem. Research, 1898, **4**, 119; Beibl. Ann. der Phys., 1898, 723; Ztschr. physikal. Chem. 1899, **29**, 365–366; Chem. News, 1898, **78**, 182–183, 193–195; Fortschr. Phys., 1898, **54**^{1}, 144; Chem. Centrbl., 1898, **69**, **II**, 530–531; Rep. tech. jour.-lit., 1898, **20**, 103.

1898: 593. Muthmann. Über die Werthigkeit der Ceritmetalle.

Ber., 1898, **31**, 1829–1836; J. Chem. Soc. Lond., 1898, **74**, **2**, 586–587; Ztschr. anorgan. Chem., 1899, **20**, 161; Beibl. Ann. der Phys., 1898, 814; Bull. soc. chim. Paris, 1899, [**3**], **22**, 84; Jahrbuch Chem., 1898, **8**, 80; Chem. Centrbl., 1898, **69**, **II**, 531; Rep. tech. jour.-lit., 1898, **20**, 658.

1898: 594. Muthmann and Rolig. Über die Löslichkeit des Schwefelsauren Ceroxyduls in Wasser.

Ztschr. anorgan. Chem., 1898, **16**, 450–462; Beibl. Ann. der Phys., 1898, 380; Chem. Centrbl., 1898, **69**, **I**, 1265–1266; Jahrbuch Chem., 1898, **8**, 81; Rep. tech. jour.-lit., 1898, **20**, 102.

1898: 595. Crookes. Address by Sir William Crookes, F. R. S., V. P. C. S.

Brit. Assoc. Adv. Science, 1898, 3–38; Chem. News, 1898, **78**, 125–136; Nature, 1898, **58**, 438–448; Jahrb. Erfind., 1899, **35**, 201; Beibl. Ann. der Phys., 1898, **22**, 813; 1898, **22**, 133 Lit. Uebers.

1898: 596. Schmidt. Ueber die Beziehung zwischen Fluorescenz und Actinoelectricität.

Ann. der Phys. Wied., 1898, **64**, 708, 724; J. Phys., 1898, **7**, 490–491.

1898: 597. Drossbach. Zur Theorie des Gasglühlichts.

J. Gasbel., 1898, **41**, 352–353; Chem. News, 1899, **79**, 72; Chem. Ztg. Rep., 1898, **22**, 162–163; Beibl. Ann. der Phys., 1898, 771; Monit. Sci. Quesneville, 1899, [**4**], **13**, **1**, 49; J. Soc. Chem. Ind., 1898, 745; J. Gas L., 1898, **71**, 1570; Fortschr. Phys., 1898, **54**^{1}, 190–191; Chem. Centrbl., 1898, **69**, **2**, 163–164; Rep. tech. jour.-lit., 1898, **20**, 43.

1898: 598. Note. Neue elektrische Glühlampen von Nernst und Auer.

J. Gasbel., 1898, **41**, 237–238; Elektrotechn. Ztschr., 1898, **19**, 272–273; Beibl. Ann. der Phys., 1898, 360–361; J. Soc. Chem. Ind., 1898, 1031; Monit. Sci. Quesneville, 1899, [**4**], **13**, **2**. 513–514; Tidsskrift för Fysik og Kemi, 1898, 207–208; Rep. tech. jour.-lit., 1898, **20**, 54.

1898: 599. Hintz. Über die Untersuchung der Glühkörper des Handels.

Ztschr. anal. Chem., 1898, **37**, 504–524; Bull. soc chim. Paris, 1898, [**3**], **22**, 43–44; J. Chem. Soc. Lond., 1898, **74**, **2**, 587; Chem. News, 1898, **77**, 249; 1899, **79**, 41; J. Soc. Chem. Ind., 1898, 906–907; Ztschr. angew. Chem., 1898, 1021; Monit. Sci. Quesneville, 1899, [**4**], **13**, **1**, 47–48; Fortschr. Phys., 1898, **54**^{1}, 189–190; Am. Gas Light J., 1899, **70**, 188–189; Wagner's Jsb., 1898, **44**, 426; Chem. Centrbl., 1898, **69**, **II**, 875–876; Rep. tech. jour.-lit., 1898, **20**, 43.

1898: 600. Le Chatelier and Boudouard. Sur la radiation des manchons à incandescence.

C. R., 1898, **126**, **2**, 1861–1864; J. Soc. Chem. Ind., 1898, 1129–1130; Résumés des Communications, Société Française de Physique, 1898, 59–60; J. Gasbel., 1898, **41**, 733–734; Beibl. Ann. der Phys., 1898, 771–772; Monit. Sci. Quesneville, 1898, [**4**], **12**, **2**, 605; Bulletin d'enc., 1898, **97**, 879–881; La Nature, 1898, **26**, **2**, 135; Ztschr. physikal. Chem., 1899, **28**, 566; Fortschr. Phys., 1898, **54**^{2}, 76–77; 1899, **55**^{1}, 227; Science Abstracts, 1899, **2**, 15; Rep. tech. jour.-lit., 1898, **20**, 42.

1898: 601. Moberg. Sur kenntniss des Steenstrupins.

Ztschr. Kryst., 1897–1898, **29**, 386–398; J. Chem. Soc. Lond., 1898, **74**, **2**, 296–297; S. of M. Quar., 1899, **20**, 206; Fortschr. Phys., 1898, **54**^{1}, 299–300; Dana's Min., 1899, 6th ed., Appendix I, p. 64; Jahrb. Min., 1900, **92**, **2**, 27–29; Chem. Centrbl., 1900, **71**, **II**, 208–209.

1898: 602. Brauner. Contributions to the Chemistry of Thorium. Comparative research on the oxalates of the rare earths.

Chem. Soc. Lond. Proc., 1897–1898, No. **191**, 67–68; J. Chem. Soc. Lond., 1898, **73**, 951–985; J. Gasbel., 1898, **41**, 387; 1899, **42**, 660; Bull. soc. chim. Paris, 1899 [**3**], **22**, 488–489; Ztschr. anorgan. Chem., 1899, **20**, 388; J. Soc. Chem. Ind., 1898, 372; Chem. Centrbl., 1898, **69**, **I**, 918; 1899, **70**, **I**, 408, 822–823.

1898: 603. Vogt. Ueber die relative Verbreitung der Elemente, besonders der Schwermetalle und über die Concentration des ursprünglich fein vertheilten Metallgehaltes zu Erzlagerstätten.

Z. prakt. Geol., 1898, **6**, 225–238, 314–327, 377–392, 413–420; 1899, 10–16; Jahrb. Min., 1900, **92**, **2**, 239–247.

1898: 604. Voelker. Glühkörper.

J. Gasbel., 1899, **42**, 695–696.

1898: 605. Glaser. Versuche über die Zusammensetzung eines sauren Thorium oxalat.

Ztschr. anal. Chem., 1898, **37**, 25–28; J. Chem. Soc. Lond., 1898, **74**, **2**, 260–261; Bull. soc. chim. Paris, 1898, [**3**,] **20**, 453–454; Chem. Centrbl., 1898, **69**, **1**, 770; Rep. tech. jour.-lit., 1898, **20**, 704.

1898: 606. Schmidt. Ueber die vom Thorium und den Thorverbindungen ausgehende Strahlung.

Verhandl. Phys. Ges. Berlin, 1898, **17**, 14–16; Ztschr. physikal. chem. unterricht, 1898, **11**, 239–241; Ann. der Phys. Wied., 1898, **65**, **I**, 141–151; J. Phys., 1898, [3], **7**, 549; J. Gasbel., 1899, **42**, 399; J. Chem. Soc. Lond., 1898, **74**, **2**, 550; Chem. News, 1898, **78**, 11; Nature, 1898, **58**, 47; Fortschr. Phys., 1898, **54**^{2}, 82; Eder's Jahrb. Phot., 1899, **13**, 105–106; Chem. Ztg. Rep., 1899, **23**, 220; Jahrb. Erfind., 1899, **35**, 202–203; Chem. Ztg., 1898, **22**, 12; Naturw. Rundschau, 1898, **13**, 239; Science Abstracts, 1898, **1**, 645; Rep. tech. jour.-lit., 1898, **20**, 211, 704.

1898: 607. Schmidt. Sur les radiations émises par le thorium et ses composés.

C. R., 1898, **126**, 1264; Fortschr. Phys., 1898, **54**^{2}, 85; Science Abstracts, 1898, **1**, 645.

1898: 608. Bunte. Bemerkungen.

J. Gasbel., 1898, **41**, 353.

1898: 609. Matthews. I. Derivatives of the Tetrachlorides of Zirconium, Thorium, and Lead.

J. Am. Chem. Soc., 1898, **20**, 815–839; 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 4; J. Chem. Soc. Lond., 1899, **76**, **2**, 295–296; J. Soc. Chem. Ind., 1899, 64; Chem. News, 1899, **79**, 6–7, 15–17, 32–33, 43–44; Jahrbuch Chem., 1898, **8**, 81–82; Chem. Centrbl., 1899, **70**, **I**, 15; Rep. tech. jour.-lit., 1898, **20**, 704–795; 1899, **21**, 84, 754, 840.

1898: 610. Matthews. II. Derivatives of the Tetrabromides of Zirconium and Thorium.

J. Am. Chem. Soc., 1898, **20**, 839–843; 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 4; J. Chem. Soc. Lond., 1899, **76**, **2**, 296; J. Soc. Chem. Ind., 1899, 64; Chem. News, 1899, **79**, 89–90; Jahrbuch Chem., 1898, **8**, 81–82; Chem. Centrbl., 1899, **70**, **I**, 15; Rep. tech. jour-lit., 1898, **20**, 704, 795; 1899, **21**, 754, 840.

1898: 611. MATTHEWS. III. The preparation of Zirconium Nitrides.

J. Am. Chem. Soc., 1898, **20**, 843–846; 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 28; J. Chem. Soc. Lond., 1899, **76**, **2**, 296–297; J. Soc. Chem. Ind., 1899, 64; Jahrbuch Chem., 1898, **8**, 81–82; Chem. Centrbl., 1899, **70**, **I**, 15–16; Rep. tech. jour.-lit., 1898, **20**, 795.

1898: 612. MATTHEWS. IV. On the separation of Iron from Zirconium and certain other allied metals.

J. Am. Chem. Soc., 1898, **20**, 846–858; 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 10; J. Chem. Soc. Lond., 1899, **76**, **2**, 335; J. Soc. Chem. Ind., 1899, 68, 75; Chem. News, 1899, **79**, 97–99, 112–114; Bull. soc. chim. Paris, 1899, [**3**], **22**, 442; S. of M. Quar., 1899, **20**, 301, 402; Chem. Centrbl., 1899, **70**, **I**, 63; Rep. tech. jour.-lit., 1898, **20**, 795.

1898: 613. CURIE. Rayons émis par les composés de l'uranium et du thorium.

C. R., 1898, **126**, **2**, 1101–1103; J. Chem. Soc. Lond., 1900, **78**, **2**, 81–82; Chem. News, 1898, **77**, 249; Monit. Sci. Quesneville, 1898, [**4**], **12**, **2**, 446–447; Ztschr. physikal. Chem., 1899, **28**, 568; Chem. Ztg., 1898, **22**, 327; Jahrb. Erfind., 1899, **35**, 201; Beibl. Ann. der Phys., 1898, **22**, 806; Science Abstracts, 1898, **I**, 645; Rep. tech. jour.-lit., 1898, **20**, 704, 722.

1898: 614. FLORENCE. Darstellung mikroskopischer Krystalle in Löthrohr-perlen.

Jahrb. Min., 1898, **2**, 102–146 + 5 Tafeln und 12 Text-figuren; Ztschr. Kryst., 1900, **33**, 180–182; Pharm. Centralh., 1898, **40**, 674; Chem. Centrbl., 1898, **69**, **II**, 1063; Rep. tech. jour.-lit., 1899, **21**, 550.

1898: 615. KOENIGSBERGER. Magnetische Susceptibilität von Flüssigkeiten und festen Körpern.

Ann. der Phys. Wied., 1898, **66**, 698–734; Ztschr. Kryst., 1900, **33**, 111–112; Science Abstracts, 1899, **2**, 128.

1898: 616. P. CURIE and Mme. S. CURIE. Sur une substance nouvelle radio-active, contenue dans la pechblende.

C. R., 1898, **127**, 175–178; J. Chem. Soc. Lond., 1900, **78**, **2**, 82; Ztschr. angew. Chem., 1898, 907; Chem. News, 1898, **78**, 49; Am. J. Sci., 1899, [**4**], **8**, 159–160; J. Frankl. Inst., 1898, **146**, 475; Revue Gen. Sci., 1899, **10**, 368; Cosmos, 1899, [**4**], **41**, 568; Naturw. Rundschau., 1898, **13**, 491–492; 1899, **14**, 91–92; Ztschr. physikal. chem. unterricht., 1899, **12**, 295; Jahrb. Erfind., 1899, **35**, 201; Fortschr. Phys., 1898, **54**^{2}, 79–80; Chem. Centrbl., 1898, **69**, **II**, 572–573; Science Abstracts, 1899, **2**, 13.

1898: 617. NOTE. Welsbach's new electric incandescent lamps.

J. Frankl. Inst., 1898, **146**, 237–239.

1898: 618. Elster and Geitel. Versuche an Becquerelstrahlen.

Ann. der Phys. Wied., 1898, **66**, 735–740; Ztschr. physikal. chem. unterricht., 1899, **12**, 296–297; Naturw. Rundschau., 1899, **14**, 96; Jahrb. Erfind., 1898, **35**, 201–202; Fortschr. Phys., 1898, **54**², 80–81; Chem. Centrbl., 1899, **70**, **I**, 4–5; Science Abstracts, 1899, **2**, 101.

1898: 619. Wyrouboff and Verneuil. Sur les oxydes condensés des terres rares.

C. R., 1898, **127**, 863–866; J. Chem. Soc. Lond., 1899, **76**, **2**, 224–225; J. Soc. Chem. Ind., 1899, **18**, 64; J. de pharm., 1899, [6], **9**, 37; Monit. Sci. Quesneville, 1899, [**4**], **13**, **1**, 75; Ztschr. anorgan. Chem., 1899, **20**, 390; Chem. Ztg., 1898, **22**, 1049; Jahrbuch Chem., 1898, **8**, 80; Chem. Centrbl., 1899, **70**, **I**, 14–15; Rep. tech. jour.-lit, 1898, **20**, 658.

1898: 620. Auer von Welsbach. Der Herstellung von Glühkörpern.

Elektrotechnischer Anzeiger, 1898, 845; Dingl. Pol. J., 1899, **311**, 94–95.

1898: 621. Curie, Curie, and Bémont. Sur une nouvelle substance fortement radio-active, contenue dans la pechblende.

C. R., 1898, **127**, 1215–1217; Monit. Sci. Quesneville, 1899, [4], **13**, **1**, 157; J. Chem. Soc. Lond., 1900, **78**, **2**, 82–83; Revue Gen. Sci., 1899, **10**, 333, 368; Chem. News, 1899, **79**, 1–2; Ztschr. physikal. chem. unterricht., 1899, **12**, 295; Scientific American, 1899, **80**, 60; J. de pharm., 1899, [**6**], **9**, 180–182; Berg. u. H. Ztg., 1899, **58**, n. s. **53**, 341; Chem. Ztg., 1899, **23**, 24; Am. J. Sci., 1899, [**4**], **8**, 159–160; Jahrb. Erfind., 1900, **36**, 204–206; Naturw. Rundschau., 1899, **14**, 91–92; Nature, 1898–1899, **59**, 232; Beibl. Ann. der Phys., 1899, **23**, 195; Fortschr. Phys., 1898, **54**², 80; Chem. Centrbl., 1900, **71**, **I**, 3–4; Science Abstracts, 1899, **2**, 280; Rep. tech. jour.-lit., 1898, **20**, 112; 1898, **21**, 216.

1898: 622. Clarke. Sixth Annual Report of the Committee on Atomic Weights. Results published during 1898.

J. Am. Chem. Soc., 1899, **21**, 200–214; 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 44; Chem. News, 1899, **79**, 195–198, 206–208; Ztschr. physikal. Chem., 1901, **36**, 120–121; Beibl. Ann. der Phys., 1899, **23**, 315–316; Fortschr. Phys., 1899, **55**¹, 127–131; Rep. tech. jour.-lit., 1899, **21**, 116.

1898: 623. Landolt, Ostwald, Seubert. Bericht der Kommission für die Festsetzung der Atomgewichte.

Ber., 1898, **31**, 2761–2768; J. Chem. Soc. Lond., 1899, **76**, **2**, 86–87; Chem. News., 1899, **79**, 207–208; Am. Chem. J., 1899, **21**, 455–457; J. Am. Chem. Soc., 1899, **21**, 200–214; Ztschr. anal. Chem., 1899, **38**, 138–140; Ztschr. angew. Chem., 1898, 1148; 1899, 57–60; Jahrbuch Chem. 1898, **8**, 65–66; J. Gasbel., 1899, **42**, 80–81; Science, 1899, **9**, 23–24; Ztschr. anorgan. Chem., 1899, **20**, 142; Revue Sci., 1899, [**4**], **11**, 151; Chem. Ztg., 1898, **22**, 43, 1031; Analyst, 1899, **24**, 82–83; Wagner's Jsb., 1898, **44**, 437–439; Fortschr. Phys., 1898, **54**¹, 144–146; Chem. Centrbl., 1899, **70**, **I**, 1–2; Beibl. Ann. der Phys., 1899, **23**, 69–71; Rep. tech. jour.-lit., 1898, **20**, 102.

1898: 624. NOTE. Thorium nitrate.

Chemist and Druggist, 1899, 352; Chem. News, 1899, **79**, 192; J. Soc. Chem. Ind., 1899, 195.

1898: 625. GIBSON. The Welsbach incandescent electric lamp.

El. Rev. London, 1898, **42**, 504–505; Monit. Sci. Quesneville, 1899, [**4**], **13**, **1**, 43–45; Science Abstracts, 1898, **1**, 465.

1898: 626. MOUL. The Welsbach incandescent electric lamp.

El. Rev. London, 1898, **42**, 541; Monit. Sci. Quesneville, 1899, [**4**], **13**, **1**, 45.

1898: 627. HIDDEN and PRATT. On the associated minerals of Rhodolite.

Am. J. Sci., 1898, [**4**], **6**, 463–468; J. Am. Chem. Soc., 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 38; Ztschr. Kryst., 1899–1900, **32**, 599–600; Jahrb. Min., 1900, **91**, **1**, 187–188; Bull. U. S. Geol. Survey, 1899, **162**, 49; Chem. Centrbl., 1899, **70**, **I**, 221.

1898: 628. EDITORIAL COMMENT. LE CHATELIER and BOUDOUARD. "Sur le rendement lumineux des oxydes rares incandescents."

L'Éclairage Électrique, 1898, **16**, 219–220; Rep. tech. jour.-lit.., 1898, **20**, 56.

1898: 629. LAMOTTE. Le fonctionnement du manchon Auer.

Résumés des Communications, Société Française de Physique, 1898, 27–28.

1898: 630. NOTE. Le fonctionnement du manchon Auer.

La Nature, 1898, **51**, 94.

1898: 631. C. E. G. La source des rayons uraniques.

La Nature, 1898, **51**, 154.

1898: 632. BARY. Un nouvel élément, Le "Polonium."

La Nature, 1898, **51**, 166–167.

1898: 633. TRUCHÔT. "Les terres rares." Paris, 1898, pp. 318 (Carré et Naud).

Bull. soc. chim. Paris, 1898, [**3**], **19**, 946; Wagner's Jsb., 1899, **45**, 485; J. Gasbel., 1898, **41**, 820; 1899, **42**, 567; J. Soc. Chem. Ind., 1898, 1196.

1898: 634. WYROUBOFF. L'incandescence des manchons Auer.

Résumés des communications, Société Française de Physique, 1898, 38–39.

1898: 635. CROOKES. On the Position of Helium, Argon, and Krypton in the Scheme of Elements.

Roy. Soc. Lond. Proc., 1898, **63**, 373, 408–411; Am. J. Sci., 1898, [**4**], **6**, 189–192; J. Phys., 1900, [**3**], **9**, 290–291; Ztschr. anorgan. Chem., 1898, **18**, 72–76; Ztschr. physikal. Chem., 1901, **36**, 626; Beibl. Ann. der Phys., 1898, **22**, 722–723; 1898, **22**, 110, 113 Lit. Uebers.; Chem. Centrbl., 1898, **69**, **II**, 407, 1004; Science Abstracts, 1898, **1**, 719.

1898: 636. WINKLER. Die relative seltenheit der Elemente mit Bezug auf deren technische Verwendung.

Sächsischer Thüringischer Bezirksverein, Dec. 11, 1898; Ztschr. angew. Chem., 1899, 93–98; Rep. tech, jour.-lit., 1899, **21**, 116.

1898: 637. LE CHATELIER and CHAPUY. Sur les colorations des émaux de grand feu de porcelaine.

C. R., 1898, **127**, 433–436; J. Soc. Chem. Ind., 1898, 1048; Chem. Centrbl., 1898, **69**, **II**, 1145.

1898: 638. ROELIG. Beiträge zur kenntnis der seltenen erden des Cerits.

Inaugural Dissertation, Kgl. Bayer, Ludwig-Maximilians-Universität zu München, 1898.

1898: 639. ———. United States Mineral Production in 1897.

Eng. and Min. Jour., 1898, **65**, 635–638; J. Soc. Chem. Ind., 1898, 622–623.

1898: 640. ———. Die Röntgenstrahlen in Beziehung auf Mineralogie und Krystallographie.

Ztschr. Kryst., 1898, **30**, 610–618.

1898: 641. MATTHEWS. Review and Bibliography of the Metallic Carbides.

Smithsonian Misc. Coll., 1090, 1898, **38**, 1–32; J. Am. Chem. Soc., 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 4; Chem. Centrbl., 1898, **69**, **II**, 835.

1898: 642. ———. Die Glühlampe von Prof. Nernst.

El. Rundschau, 1898, **15**, 123–124; Fortschr. Phys., 1899, **55**^{1}, 228.

1898: 643. BAYLEY. Atomic volume as a periodic function.

J. Am. Chem. Soc., 1898, **20**, 935–948; 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 9; Ztschr. anorgan. Chem., 1900, **23**, 229; Ztschr. physikal. Chem., 1901, **36**, 117; Fortschr. Phys., 1899, **55**^{1}, 139–140; Chem. Centrbl, 1899, **70**, **I**, 403.

1898: 644. HEIGHWAY. Monazite production in North Carolina.

Eng. and Min. Jour., 1898, **66**, 543.

1898: 645. BRAUNER. Zur Trennung der Thorerde von den übrigen seltenen erden.

Ztschr. angew. Chem., 1898, 1056–1057; J. Soc. Chem. Ind., 1899, 75; D. R. P., 97689; Patent Blatt., 1898, **19**, 440; Chem. Centrbl., 1898, **69**, **II**, 653–654.

1898: 646. SCHEURER and BRYLINSKI. Teinture des matières colorantes sur 19 mordants métalliques. Résistance de ces teintures au soleil.

Bull. Soc. Ind. Mulhouse, 1898, **68**, 124–130; et Résumés des séances et procès verbaux, 30, 31, 35–36; J. Soc. Chem. Ind., 1898, 757–758; Monit. Sci. Quesneville, 1898, [**4**], **12**, **2**, 673–680.

1898: 647. Scheurer and Brylinski. Teinture des colorants immédiats sur 20 mordants métalliques.

Bull. Soc. Ind. Mulhouse, 1898, **68**, 131–147; et Résumés des séances et procès verbaux, 47, 51, 52; J. Soc. Chem. Ind., 1898, 758.

1898: 648. Scheurer and Brylinski (reference to paper in 1897).

Bull. Soc. Ind. Mulhouse, 1898, **68**; Résumés des séances et procès verbaux, 35–36, 85, 86–87; Programme des Prix proposés par la Société Industrielle de Mulhouse dans sons assemblée générale du 25 mai 1898 à décerner en 1899. Arts chimiques, Travaux théoriques; Art. 13, page 8; Art. 17, page 9; Art. 23, page 10; Art. 30, pages 11–12.

1898: 649. Gandourine. Mordants pour la laine. Essai de 44 éléments.

Bull. Soc. Ind. Mulhouse, 1898, **68**, 326–341; et Résumés des séances et procès verbaux, 118, 120; J. Soc. Chem. Ind. 1899, 268-269; Monit. Sci. Quesneville, 1899, [**4**], **13**, **1**, 448–456.

1898: 650. Note. Duty on incandescent mantles.

"German Customs List," J. Soc. Chem. Ind., 1898, 703.

1898: 651. J. R. Filaments de lamps à incandescence du Dr. Auer von Welsbach.

L'Éclairage Électrique, 1898, **15**, 190–192; Science Abstracts, 1898, **1**, 465.

1898: 652. Ramsay. L'Helium.

Ann. chim. phys., 1898, [**7**], **13**, 433–480; Chem. Centrbl., 1898, **69**, **I**, 1014.

1898: 653. De Perrodil. Le Carbure de Calcium et l'Acetylene; Les Fours Electriques (a translation). Paris, 1897.

Progressive Age, 1898, **16**, 584; 1899, **17**, 15–16, 33–34, 55, 72–73, 91–92, 110–111, 148.

1898: 654. Note. Thoriumsalze.

J. Gasbel., 1898, **41**, 421.

1898: 655. Forsling. Om absorptionsspektra hos Erbium, Holmium och Thulium.

Bihang till Kongl. Sv. Vet. Akad. Handl., 1898–1899, **24**, Afd. **I**, No. **7**, 1–35; Beibl. Ann. der Phys., 1900, **24**, 477–478.

1898: 656. Honig. Neue elektrische Glühlampen von Nernst and Auer.

Mitth. Kais. König. Tech. Gew.-Mus. in Wien, 1898, **8**, 245–248; Rep. tech. jour.-lit., 1898, **20**, 54.

1898: 657. Note. Incandescence de l'Osmium.

J. pharm., 1898, [**6**], **8**, 266.

1898: 658. Note. Elektrisches Auer-Glühlicht.

Neue Freie Presse, Wien, 1898; J. Gasbel., 1898, **41**, 120.

1898: 659. NOTE. A Welsbach Electric Light.

J. Gas L., 1898, **71**, 397.

1898: 660. EDITORIAL. The Welsbach Electric Light.

J. Gas L., 1898, **71**, 879; Ztschr. Elect., 1898, **16**, 379; Rep. tech. jour.-lit., 1898, **20**, 54.

1898: 661. SALOMONS. The Welsbach Electric Light.

Het Gas, Rotterdam, 1898; J. Gas L., 1898, **71**, 1064.

1898: 662. NOTE. Neues elektrisches Glühlicht von Auer. Leuchtfaden aus Osmium, resp. Osmium mit einem ueberzuge aus Thoroxyd.

Uhland's W. T., 1898, **2**, 42; Der Metallarbeiter, 1898, **24**, **1**, 363–365; Ztschr. Beleucht., 1898, **4**, 127–128; Wieck's Deutsche Gewerbezeitung, Stuttgart, 1898, **63**, 204; Wagner's Jsb., 1899, **30**, 100; Rep. tech. jour.-lit., 1898, **20**, 54.

1898: 663. NOTE. Gasglühlicht-Processe.

J. Gasbel., 1898, **41**, 562–565, 578–582.

1898: 664. NOTE. Gasglühlicht-Processe.

J. Gasbel., 1898, **41**, 798–800, 816–818.

1898: 665. NOTE. Atomgewichte der Elemente für praktisch-analytische Rechnungen.

Chem. Ztg., 1898, **22**, 1031.

1898: 666. HINTZ. Method for analysis of incandescent mantles.

The Mineral Industry, New York, 1898, **7**, 520–521; Progressive Age, 1899, **17**, 419.

1898: 667. NAUMANN. Welche Grundlage ist für die atomgewichtszahlen zu wählen, O = 16 oder H = 1?

Chem. Ztg., 1898, **22**, 347–349; Jahrbuch Chem., 1898, **8**, 66.

1898: 668. BUNTE. (Light emissive power of the rare oxides.)

Société Française de Physique, Bulletin, 1898, 114, p. 2; Electrical World and Engineer, N. Y., 1899, **33**, 515; Science Abstracts, 1899, **2**, 94.

1899: 669. BUNTE. The Rare Oxides and Incandescent Lamp. (A note by the editor.)

Electrical World and Engineer, N. Y., 1899, **33**, 495–496.

1899: 670. ———. Electrolytic lamp and filaments. Patent to Welsbach. May 19, 1899.

Electrical World and Engineer, N. Y., 1899, **33**, 829; Chem. Ztg. Rep., 1899, **23**, 240.

1899: 671. ———. A New Edison Lamp. Patent June 6, 1899.

Electrical World and Engineer, N. Y., 1899, **33**, 848; Chem. Ztg. Rep., 1899, **23**, 240.

1899: 672. ———. Glühfäden aus seltenen Erden für elektrische Glühlampen.

Elektrotechn. Ztschr., 1899, **20**, 533; J. Gasbel., 1899, **42**, 535.

1899: 673. Swinburne. Nernst's electric light.

J. Soc. Arts, 1898-1899, **47**, 253-260; Am. Gas Light J., 1899, **70**, 650-651; J. Gas L., 1899, **73**, 361, 372-373; The Electrician, London, 1899, **42**, 545-546; Engineering, 1899, **67**, 183; J. Gasbel., 1899, **42**, 157-160, 177-178; Chem. Ztg., 1899, **23**, 141; Wagner's Jsb., 1899, **30**, 99; Z. Calciumcarb., 1899, **3**, 2-4; Der Metallarbeiter, 1899, **25**, **2**, 423-424; Industries and Iron, London, 1899, **26**, 125-127, 147-148; Electrical World and Engineer, N. Y., 1899, **33**, 234-235; Schw. Bauzeitung, 1899, **33**, 91, 134-135; El. Rundsch., 1899, **16**, 169-170; Sci. Amer. Suppl., 1899, **47**, 19396; J. of Phot. Suppl., 1899, **46**, 19-23; El. Eng., London, 1899, **23**, 178-180; El. Rev., London, 1899, **44**, 259-262; El. Eng., N. Y., 1899, **27**, 244-245; El. Rev., N. Y., 1899, **34**, 135, 152-154; Progressive Age, 1899, **17**, 115; Science Abstracts, 1899, **2**, 245; Rep. tech. jour.-lit., 1899, **21**, 601.

1899: 674. Swinburne. On Nernst Lamp.

El. Rev, N. Y., 1899, **34**, 173.

1899: 675. Note. Die Elemente und ihre Verbindungen.

Jahrb. Erfind., 1899, **35**, 225-242.

1899: 676. Wiechmann. Atomic Weights.

Science, 1899, **9**, 23-24; Science Abstracts, 1899, **2**, 370.

1899: 677. Note. Tabellarische Zusammenstellung der in der Analyse am meisten gebrauchten Coëfficienten auf Grund der neuen praktischen Atomgewichte.

Chem. Ztg., 1899, **23**, 219-221.

1899: 678. Mason. A new step in electric lighting.

U. S. Consular Reports, 1900, **62**, No. **232**, 64-66; Progressive Age, 1899, **17**, 562.

1899: 679. Bunte and Eitner. Leuchtkraft und Lichtfarbe des Kugellichts.

J. Gasbel., 1899, **42**, 832-834, 848-853.

1899: 680. Note. Helium.

Jahrb. Erfind., 1899, **35**, 301-305.

1899: 681. Erdmann. Zur Frage der Atomgewichtseinheit.

Bezirksverein für Sachsen und Anhalt, March 19, 1899; Ztschr. angew. Chem., 1899, 648-655.

1899: 682. Fresenius. Atomgewichte der Elemente.

Ztschr. anal. Chem., 1899, 330-332.

1899: 683. Heighway. Monazite.

The Mineral Industry, New York, 1899, **8**, 2, 8-9, 430; Progressive Age, 1899, **17**, 405; 1900, **18**, 301.

1899: 684. NOTE. Voelker mantle.

Progressive Age, 1899, **17**, 100–101.

1899: 685. NOTE. Concession to John Gordon of Monazite deposit, Brazil, with analyses.

Progressive Age, 1899, **17**, 151.

1899: 686. NOTE. (New mantle by New Incandescent Gas Light Company, with humorous translation of French patent.)

Gas World, March 11, 1899; Progressive Age, 1899, **17**, 151.

1899: 687. EDISON. New patent filament. June 6, 1899.

Progressive Age, 1899, **17**, 301.

1899: 688. FURNISS. Brazilian Export Tax on Monazite.

U. S. Consular Reports, 1899, **59**, No. **221**, 331–332; Progressive Age, 1899, **17**, 419.

1899: 689. NOTE. Discovery of Monazite Sand, Brazil, by Gorceix.

Progressive Age, 1899, **17**, 441.

1899: 690. (Composition of Mantles.)

Invention, 1899, Sept. 2; Progressive Age, 1899, **17**, 527.

1899: 691. ———. The Mineral Industry, New York, 1899 (review).

Progressive Age, 1900, **18**, 287.

1899: 692. LENHER. Rare Elements.

The Mineral Industry, New York, 1899, **8**, 495–506.

1899: 693. FURNISS. Monazite concession in Brazil.

U. S. Consular Reports, 1899, **60**, No. **224**, 143–145; Eng. and Min. Jour., 1899, **67**, 409; J. Soc. Chem. Ind., 1899, 413.

1899: 694. MERRILL. Guide to the Study of the Collections in the Section of Applied Geology.

Annual Report of the Smithsonian Institution for the year ending June 30, 1899. Report of the U. S. National Museum. Part II, pp. 155–483.

1899: 695. BINDER. Das Leuchten der Glühkörper.

Ztschr. f. Naturw., 1899, **71**, 435–441; Fortschr. Phys., 1899, **55**^{1}, 225–226.

1899: 696. HOWE. The place of the new constituents of the Atmosphere in the Periodic System.

Chem. News, 1899, **80**, 74–76; Fortschr. Phys., 1899, **55**^{1}, 137–138; Chem. Centrbl., 1899, **70**, **II**, 578; Science Abstracts, 1900, **3**, 82.

1899: 697. KILLING. Der weisse Beschlag an Rauchfängern und Cylindern der Gasglühlicht-Apparate und seine Beziehungen zum Glühkorper und Leuchtgas.

J. Gasbel., 1899, **42**, 841–843; J. Soc. Chem. Ind., 1900, **19**, 30; Progressive Age, 1900, **17**, 17.

1899: 698. Killing. Ueber die automatische Zündung von Leuchtgas.

J. Gasbel, 1899, **42**, 293–296; J. Soc. Chem. Ind., 1899, 670; Wagner's Jsb., 1899, **30**, 94.

1899: 699. Hugo Krüss. Ergänzung zum Verzeichnis der Veröffentlichungen von Gerhard Krüss.

Ztschr. anorgan. Chem., 1899, **19**, 327.

1899: 700. Remarks by the Secretary. Leben und Wirken des Prof. L. F. Nilson.

Chemische Gesellschaft zu Stockholm, Sitzung vom, Sept. 21, 1899; Chem. Ztg., 1899, **23**, 804.

1899: 701. Schüler. Ueber Glühkorper für elektrische Glühlampen und ihre Entwickelung.

Ztschr. Beleucht., 1899, **5**, 115–117, 127–129, 140–141; Dingl. pol. J., 1899, **311**, 15–16, 34–35, 62–64, 93–95, 158–162.

1899: 702. Bruno. Experimentelle Untersuchungen über die Einwirkung verschiedener Körper auf die Thor-Cer-Oxyde und über Temperverfahren zur Erzielung einer Regenerirungsfähigkeit des Cers.

Ztschr. Beleucht., 1899, **5**, 244–246, 258–260, 268–269; Progressive Age, 1899, **17**, 410, 437–438; Rep. tech. jour.-lit., 1899, **21**, 47.

1899: 703. Chemische Fabrik für Beleuchtungswesen, G. m. b. H. in Berlin. Verfahren zur Herstellung arsen-oder antimonhaltiger Glühkörper.

Ztschr. Beleucht., 1899, **5**, 434; Rep. tech. jour.-lit., 1899, **21**, 47.

1899: 704. Becquerel. Note sur quelques propriétés du rayonnement de l'uranium et des corps radio-actifs.

C. R. 1899, **128**, 771–777; J. Chem. Soc. Lond., 1899, **76**, **2**, 393–394; Am. J. Sci., 1899, [**4**], **7**, 471–472; Cosmos, 1899, [**4**], **40**, 441; Ztschr. physikal. chem. unterricht., 1899, **12**, 295–296; Le Moniteur de la Photographie, 1899; Revue suisse de Phot., 1899, **11**, 340–348; J. of Phot. Suppl., 1899, **46**, 42–43; La Nature, 1898–1899, **52**, 287; J. Phys., 1900, [**3**], **9**, 597; Chem. Ztg., 1899, **23**, 318; Revue Gen. Sci., 1899, **10**, 292; Jahrb. Erfind., 1900, **36**, 207–208; Fortschr. Phys., 1899, **55**^{2}, 96–97; Science Abstracts, 1899, **2**, 445; Rep. tech. jour.-lit., 1899, **21**, 216.

1899: 705. Job. Dosage volumétrique du cérium. Application.

C. R., 1899, **128**, 101–102; Bull. soc. chim. Paris, 1899, (**3**), **21**, 350; J. Chem. Soc. Lond., 1899, **76**, **2**, 334; J. Soc. Chem. Ind., 1899, 300; J. Gasbel., 1899, **42**, 351; Ztschr. anorgan. Chem., 1899, **20**, 275; Monit. Sci. Quesneville, 1899, [**4**] **13**, **1**, 227; Revue Gen. Sci., 1899, **10**, 78; Revue Sci., 1899, [4], **11**, 83; Chem. News, 1899, **79**, 95; Chem. Centrbl., 1899, **70**, **1**, 453–454.

1899: 706. Notice. Zur Lage des Thoriummarktes.

Ztschr. angew. Chem., 1899, 73; J. Gasbel., 1899, **42**, 140.

1899: 707. Note. Les métaux précieux.

Mining and Scientific Press; Revue Sci., 1899, [4], **11**, 86.

1899: 708. Meyer. Über die magnetischen Eigenschaften der Elemente.

Monatsh. Chem., 1899, **20**, 369–382; Sitzungsber. Akad. d. Wien. math.-naturw. Cl., 1899, **108**, Abth. **II***a*, 171–184, and table; Ann. der Phys. Wied., 1899, **68**, 325–334; Ztschr. physikal. chem. unterricht., 1900, **13**, 173; Ztschr. anorgan. Chem., 1899, **21**, 299; 1899, **22**, 308; Ztschr. physikal. Chem., 1900, **32**, 186; J. Chem. Soc. Lond., 1899, **76**, **2**, 587; J. Phys., 1899, [3], **8**, 569; Fortschr. Phys., 1899, **55**^{2}, 808; Chem. Centrbl., 1899, **70**, **II**, 163, 740, 741; Science Abstracts, 1899, **2**, 685.

1899: 709. Fresenius. Atomgewichte der Elemente (Clarke's table).

Ztschr. anal. Chem., 1899, 330–332.

1899: 710. Curie and Curie. Les rayons de Becquerel et les corps radio-actifs.

Résumés des Communications, Société Française de Physique, 1899, 22–23.

1899: 711. Wyrouboff and Verneuil. Sur la constitution des oxydes des métaux rares.

C. R., 1899, **128**, 1573–1575; Ztschr. anorgan. Chem., 1899, **21**, 396; Revue Sci., 1899, [**4**], **12**, **2**, 52; Revue Gen. Sci., 1899, **10**, 562; J. Chem. Soc. Lond., 1899, **76**, **2**, 598; Nature, 1899, **60**, 240; Monit. Sci. Quesneville, 1899, [**4**], **13**, **2**, 617–618; Chem. Ztg., 1899, **23**, 587; Chem. News, 1899, **80**, 47; Chem. Centrbl., 1899, **70**, **II**, 333–334; Rep. tech. jour.-lit., 1899, **21**, 711.

1899: 712. Meyer. Magnetisirungszahlen anorganischer Verbindungen.

Monatsh. Chem., 1899, **20**, 797–834; Sitzungsber. Akad. d. Wiss. Wien. math.-naturw. Cl., 1899, **108**, Abth. **II***a*, 861–898; Ann. der Phys. Wied., 1899, **69**, 236–263; Ztschr. physikal. Chem., 1900, **32**, 409–410; J. Chem. Soc. Lond., 1900, **78**, **2**, 7–8; Ztschr. physikal. chem. unterricht., 1900, **13**, 173; Ztschr. anorgan. Chem., 1900, **23**, 228; J. Phys., 1900, [**3**], **9**, 39; Fortschr. Phys., 1899, **55**^{2}, 808–809; Beibl. Ann. der Phys., 1900, **24**, 15 Lit. Uebers; Chem. Centrbl., 1900, **71**, **I**, 5–7.

1899: 713. Curie. Les rayons de Becquerel et le Polonium.

Revue Gen. Sci., 1899, **10**, 41–50; Beibl. Ann. der Phys., 1900, **24**, 324; Chem. News, 1899, **79**, 77–78; Fortschr. Phys., 1899, **55**^{3}, 95; Rep. tech. jour.-lit., 1899, **21**, 216.

1899: 714. Note. A new incandescent gas-mantle.

J. Gas L., 1899, **73**, 363–364; Progressive Age, 1899, **17**, 115.

1899: 715. Lewes. The Voelker Incandescent Gas-mantle.

J. Gas L., 1899, **73**, 510.

1899: 716. Lewes. Incandescent Mantles.

J. Gas L., 1899, **73**, 1194, 1195–1200; Annual Report of the Smithsonian Institution, 1900, ending June 30, 1900, 387–401; Am. Gas Light J., 1899, **70**, 767–771; Sci. Amer. Suppl., 1899, **48**, 19711–19712; Progressive Age, 1899, **17**, 230–233; Rep. tech. jour.-lit., 1899, **21**, 47.

1899: 717. Note. Zur Frage der Atomgewichtseinheit.

Ztschr. angew. Chem., 1899, 648–655.

1899: 718. Judd and Hidden. On a new mode of occurrence of Ruby in North Carolina, with Crystallographic Notes by J. H. Pratt.

Min. Mag., 1899, **12**, 139–149; Am. J. Sci., 1899, [**4**], **8**, 370–381; Bull. U. S. Geol. Survey, 1901, **172**, 49; Jahrb. Min., 1901, **93**, **1**, 187–189; Min. Mitth., 1901, **20**, 266 Lit. Notiz.; Fortschr. Phys., 1899, **55**^{1}, 270–271; Rep. tech. jour.-lit., 1899, **21**, 177.

1899: 719. Harding. Thorium in Tennessee phosphates.

Eng. and Min. Jour., 1899, **67**, 142; Chem. Ztg. Rep., 1899, **23**, 69; Wagner's Jsb., 1899, **30**, 441; Jahrb. Min., 1900, **92**, **2**, 31.

1899: 720. Note. Monazit.

Berg. u. H. Ztg., 1899, **58**, n. s. **53**, 152.

1899: 721. Exner and Haschek. Über die ultravioletten Funkenspectra der Elemente. "Thorium," XV Mittheilung.

Sitzungsber. Akad. d. Wien. math.-naturw. Cl., 1899, **108**, Abth. **II**a, 825–859; Beibl. Ann. der Phys., 1899, **24**, 109–110 Lit. Uebers; Fortschr Phys, 1899, **55**^{2}, 178–179; Science Abstracts, 1900, **3**, 782–783; Rep. tech. jour.-lit., 1899, **21**, 718.

1899: 722. Matthews. Classification of the Carbides, their modes of formation, and reactions of decomposition.

J. Am. Chem. Soc., 1899, **21**, 647–650; J. Soc. Chem. Ind., 1899, 817–818; Chem. Centrbl., 1899, **70**, **II**, 553.

1899: 723. Bayerlein Atomgewichte der Elemente.

Ztschr. anal. Chem., 1899, 138–140.

1899: 724. Hillebrand. Mineralogical Notes. Analyses of Tysonite, Bastnäsite, Prosopite, Jeffersonite, Covellite, etc.

Am. J. Sci., 1899, [**4**], **7**, 51–57; Ztschr. anorgan. Chem., 1899, **20**, 273; J. Am. Chem. Soc., 1899, **21**, in Review of Am. Chem. Research, 1899, **5**, 38–39; Jahrb. Min., 1899, **93**, **1**, 33–34; Ztschr. Kryst., 1901, **34**, 95–97; Bull. soc. franç. min., 1899, **22**, 36–37; Bull. U. S. Geol. Survey, 1900, **172**, 45; Chem. Centrbl., 1899, **70**, **I**, 565–566; Rep. tech. jour.-lit., 1899, **21**, 356.

1899: 725. Rutherford, Coutts, Trotter, and McDonald. Uranium radiation and the electrical conduction produced by it.

Phil. Mag., 1899, [**5**], **47**, 109–163; Am. J. Sci., 1899, [**4**], **7**, 238; Ztschr. physikal. chem. unterricht., 1899, **12**, 298–299; Ztschr.

physikal. Chem., 1899, **29**, 756; Chem. Ztg. Rep., 1899, **23**, 59; J. Phys., 1899, [**3**], **8**, 299–302; Jahrb. Erfind., 1900, **36**, 206–207; Beibl. Ann. der Phys., 1899, **23**, 591–594; 1899, **23**, 24 Lit. Uebers; Fortschr. Phys., 1899, **55**^{2}, 98–99; Chem. Centrbl., 1900, **71**, **1**, 388; Science Abstracts, 1899, **2**, 444–445; Rep. tech. jour.-lit., 1899, **21**, 216, 754.

1899: 726. GUILLAUME. D'un travail de M. Rutherford sur les radiations uraniques.

Résumés des Communications, Société Française de Physique, 1899, 3.

1899: 727. FRESENIUS. Atomgewichte.

Bezirksverein Frankfurt a. M., 1899, February 25; Ztschr. angew. Chem., 1899, 361–367; Ztschr. Rübenz., 1899, **42**, 183–186; Rep. tech. jour.-lit., 1899, **21**, 116.

1899: 728. OWENS. Thorium radiation.

Phil. Mag., 1899, [**5**], **48**, 360–387; Beibl. Ann. der Phys., 1900, **24**, 584–585; J. Gasbel., 1899, **42**, 835; J. Phys., 1899, [**3**], **8**, 709–711; Chem. Ztg. Rep., 1899, **23**, 330; Naturw. Rundschau., 1900, **15**, 33–34; Ztschr. physikal. chem. unterricht., 1900, **13**, 99–107; Jahrb. Erfind., 1901, **37**, 194–196; El. Rev., N. Y., 1899, **35**, 294; Progressive Age, 1899, **17**, 549; Fortschr. Phys., 1899, **55**^{2}, 104–105; Science Abstracts, 1900, **3**, 24; Rep. tech. jour.-lit., 1899, **21**, 117.

1899: 729. CLARKE. Seventh Annual Report of the Committee on Atomic Weights. Results published in 1899.

J. Am. Chem. Soc., 1900, **22**, 70–80; 1900, **22**, in Review of Am. Chem. Research, 1900, **6**, 72; J. Chem. Soc. Lond., 1900, **78**, **2**, 339–340; Chem. News, 1900, **81**, 146–147, 160–161; Ztschr. physikal. Chem., 1901, **36**, 120–121; Beibl. Ann. der Phys., 1900, **24**, 631; 1900, **24**, 50 Lit. Uebers; Science Abstracts, 1900, **3**, 566.

1899: 730. NOTE. Die Nitratlampe.

Elektrotechnischer Neuigkeits Anzeiger, 1899, **2**, 677; L'Éclairage Électrique, 1899, **20**, 181–182; Ztschr. Beleucht., 1899, **5**, 303–304; Beibl. Ann. der Phys., 1900, **24**, 77; Fortschr. Phys., 1899, **55**^{2}, 771; Rep. tech. jour.-lit., 1899, **21**, 60.

1899: 731. NOTE. A rare earth deposit.

Chemist and Druggist, 1899, **54**, 46; J. Soc. Chem. Ind., 1899, 166.

1899: 732. DROSSBACH. Metathorglühstrümpfe.

Pharm. Centralhalle, 1899, **40**, 94; Gesundheits Ing., 1899, **22**, 265; Rep. tech. jour.-lit., 1899, **21**, 47.

1899: 733. RICHARDS. Les lampes à incandescence.

L'Éclairage Électrique, 1899, **19**, 321–326; Rep. tech. jour.-lit., 1899, **21**, 60.

1899: 734. NERNST. Die Nernst'sche Glühlampe.

Elektrotechn. Ztschr., 1899, **20**, 355–356; Wieck's Deutsche Gewerbez Zeitung, Stuttgart, 1899, **64**, 115–116; Uhlands W. T., 1899, **2**, 39–

40; Prometheus, 1899, **10**, 380; Pharm. Centralh., 1899, **40**, 480–482; Am. Electr., 1899, **11**, 180; Arch. Post., 1899, 872–873; Ann. tél., 1899, **25**, 180–186; Dingl. pol. J., 1899, **312**, 197–199; J. Gasbel., 1899, **42**, 362–364; Ztschr. Oest. Ing. V., 1899, **51**, 362–363; Central Z. Leipzig, 1899, **20**, 105–106 F.; Elektrotechnischer Anzeiger, 1899, **16**, 1109–1111; Dampf., 1899, **16**, 595–596, F.; Ztschr. Beleucht., 1899, **5**, 181–182; Z. Arch., 1899, **45**, 345–347; Polyt. Centrbl., 1899, **60**, 211–213; Fortschr. Phys., 1899, **55**^{2}, 771; Rep. tech. jour.-lit., 1899, **21**, 60.

1899: 735. Wyrouboff and Verneuil. Sur les oxydes condensés des terres rares.

Bull. soc. chim. Paris, 1899, [**3**], **21**, 118–143; Chem. News, 1899, **80**, 35; Ztschr. anorgan. Chem., 1899, **20**, 390; Chem. Centrbl., 1899, **70**, **I**, 726; Rep. tech. jour.-lit., 1899, **21**, 711.

1899: 736. Hintz. (Lighting power of mantles.)

Journal des Usines à Gaz, 1899, January 20; Progressive Age, 1899, **17**, 97.

1899: 737. Prior. Minerals from Swaziland; Niobates and Titanates of the rare earths, chemically allied to Euxenite and Fergusonite, Cassiterite, Monazite, &c. The Aeschynite from Hitterö.

Min. Mag., 1899, **12**, 96–101; J. Chem. Soc. Lond., 1899, **76**, **2**, 432–433; Jahrb. Min., 1901, **93**, **I**, 31; Ztschr. Kryst., 1899–1900, **32**, 279–280; Chem. Centrbl., 1900, **71**, **I**, 622.

1899: 738. Campbell-Swinton. On the Luminosity of the Rare Earths when heated *in vacuo* by means of Cathode Rays.

Roy. Soc. Lond. Proc., 1899, **65**, 115–119; Revue Gen. Sci., 1899, **10**, 459; Naturw. Rundschau, 1899, **14**, 503–504; J. Gas L., 1899, **73**, **2**, 1743–1744; J. Phys., 1900, [3], **9**, 297–298; Progressive Age, 1899, **17**, 301; The Electrician., London, 1899, **43**, 372–374; El. Rev., London, 1899, **44**, 915–916; Industries and Iron, London, 1899, **26**, 446–447; J. Soc. Chem. Ind., 1899, 744; Electrotechnischer Anzeiger, 1899, **16**, 1495–1496 F.; Science Abstracts, 1899, **2**, 742; Rep. tech. jour.-lit., 1899, **21**, 213–214.

1899: 739. Dawson and Williams. Die Beurteilung der Sättigung von Lösungen durch messung der Leitfähigkeit.

Ztschr. Elektrochem., 1899, **6**, 141–144; Beibl. Ann. der Phys., 1900, **24**, 799; Ztschr. physikal. Chem., 1900, **33**, 379; Chem. Centrbl., 1899, **70**, **II**, 692.

1899: 740. Note. Les sables de Prado.

Cosmos, 1899, **40**, 129–130.

1899: 741. Richards. A Table of Atomic Weights of 74 Elements.

Proc. Amer. Acad. Arts and Sci., 1899, **34**, 619, 637, 638; Chem. News, 1900, **81**, 113–114; Fortschr. Phys., 1899, **55**^{1}, 131–132.

1899: 742. Kauffmann. Zur kenntnis einiger neuer Thoriumsalze.
Inaugural Dissertation, Rostock, 1899.

1899: 743. Truchôt. L'Éclairage à Incandescence par le Gaz et les liquides gazéifiés analysé par M. M. Guichard (a review of Truchôt's book).
Revue Gen. Sci., 1899, **10**, 677; Revue Sci., 1899, [4], **12**, 114–115; Nature, 1899, **60**, 517; J. Gasbel., 1899, 383, 567.

1899: 744. Editorial note. Les rayons de Becquerel et les corps nouveaux.
Revue Gen. Sci., 1899, **10**, 890–892; Beibl. Ann. der Phys., 1900, **24**, 324–325.

1899: 745. Notice. (Auer electric incandescent lamp.)
J. Gasbel., 1899, 42, 535; Revue Sci., 1899, [4], **12**, 190.

1899: 746. Crookes. Sur la source de l'energie dans les corps radioactifs.
C. R., 1899, **128**, 176–178; Am. J. Sci., 1899, [4], **7**, 472; Fortschr. Phys., 1899, **55**², 95; Science Abstracts, 1899, **2**, 223.

1899: 747. Guichard. La chimie des terres rares.
Revue Gen. Sci., 1899, **10**, 494–495.

1899: 748. Behrendsen. Beiträge zur kenntniss der Becquerelstrahlen.
Ann. der Phys. Wied., 1899, **69**, 220–235; Ztschr. Kryst., 1901, **35**, 195–196; Jahrb. Erfind., 1900, **36**, 211–213; Science Abstracts, 1899, **2**, 825.

1899: 749. Meyer and Schweidler. Über das Verhalten von Radium und Polonium im magnetischen Felde.
Wien. Akad. Anz., 1899, 351; Naturw. Rundschau, 1899, **15**, 78–79; Phys. Ztschr., 1900, **1**, 90–91, 113–114; Science Abstracts, 1900, **3**, 693–694.

1899: 750. Note. Monazite.
Mining and Scientific Press, 1899, **79**, 171.

1899: 751. Note. Monazite.
Mining and Scientific Press, 1899, **79**, 403.

1899: 752. Rutherford and Owens. Thorium and Uranium Radiation.
Trans. of the Royal Soc. of Canada, 1899, (2°), vol. 5, sec. III, 9–12, and Proceedings, p. cxxviii; Beibl. Ann. der Phys., 1901, **25**, 156–157; 1901, **25**, 13 Lit. Uebers.; Fortschr. Phys., 1900, **56**², 109–110.

1899: 753. Dawson and Williams. On the determination of transition temperatures.
Chem. Soc. Lond. Proc., 1899, **15**, 210–211; Chem. Centrbl., 1900, **I**, 86.

1899: 754. VOGT. Ueber die relative verbreitung des Vanadins in Gesteinen.

Ztschr. prakt. Geol., 1899, 274–277; Chem. Centrbl., 1899, **70**, **II**, 783–784.

1899: 755. CROOKES. Some of the latest Achievements of Science.

Annual Report of the Smithsonian Institution for the year ending June 30, 1899, 143–153.

1899: 756. ———. "Les terres rares." Truchot (a review by Scheibe).

Ztschr. prakt. Geol., 1899, **7**, 230.

1899: 757. EDITORIAL. Nernst Licht, Lampe von Edison, Lampe von Auer von Welsbach.

Wagner's Jsb., 1899, **30**, 99–100.

1899: 758. ELSTER and GEITEL. Weitere Versuche an Becquerelstrahlen.

Ann. der Phys. Wied., 1899, **69**, 83–90; Ztschr. physikal. Chem., 1900, **32**, 408; J. Phys., 1900, [**3**], **9**, 33; Ztschr. Kryst., 1901, **35**, 194–195; Jahrb. Erfind., 1900, **36**, 208–209; Science Abstracts, 1899, **2**, 825.

1899: 759. WINKLER. Die relative Seltenheit der Elemente mit Bezug auf ihre technische Verwendung.

Ztschr. angew. Chem., 1899, 93–98; Jahrb. Min., 1900, **92**, **2**, 239.

1899: 760. HOFFMANN. Upon the occurrence of Polycrase in Canada.

Am. J. Sci., 1899, [**4**], **7**, 243; Ztschr. Kryst., 1901, **34**, 99.

1899: 761. FLINK, BØGGILD, and WINTHER. (By Gust. Flink:) I Theil. Ueber die Mineralien von Narsarsuk im Fjord von Tunugdliarfik, Süd Grönland.

Meddelelser om Grönland, 1899, [1900], **24**, 7–180, Taf. IX; J. Chem. Soc. Lond., 1900, **78**, **2**, 410–413; Ztschr. Kryst., 1901, **34**, 639–682; Jahrb. Min., 1902, **94**, **I**, 18–38 Ref.; S. of M. Quar., 1902, **23**, 296.

1899: 762. FLINK, BØGGILD, and WINTHER. (By O. B. Bøggild and Chr. Winther:) II Theil. Ueber einige Mineralien aus dem Nephelinsyenit von Julianehaab in Grönland (Epistolit, Britholit, Schizolith, und Steenstrupin), gesammelt von G. Flink.

Meddelelser om Grönland, 1899, [1900], **24**, 181–213; J. Chem. Soc. Lond., 1900, **78**, **2**, 413–414, 414–415; Ztschr. Kryst., 1900, **34**, 682–691; Jahrb. Min., 1901, **93**, **I**, 373–379 Ref.; S. of M. Quar., 1902, **23**, 296–297; Bull. soc. franç. min., 1900, **23**, 34–35, 204–208; Min. Mag., 1901, **13**, 94–95; Am. J. Sci., 1900, **160**, [**4**], **10**, 323–325; Jahrb. Min., 1900, Festheft 16; Chem. Centrbl., 1901, **72**, **I**, 226–227; 1901, **72**, **II**, 945–946.

1899: 763. DERBY. On the Association of Argillaceous Rocks with Quartz Veins in the Region of Diamantina, Brazil.

Am. J. Sci., 1899, [**4**], **7**, 343–356; Ztschr. Kryst., 1901, **34**, 101; Jahrb. Min., 1901, **93**, **I**, 412–413.

1900: 780. Du Bois and Liebknecht. Moleculare Susceptibilität der salze seltener Erden.

Verhandl. der Deut. Phys. Ges., 1900, **2**, 12, 19–21; Beibl. Ann. der Phys., 1900, **24**, 21 Lit. Uebers; Fortschr. Phys., 1900, **56**^{2}, 687.

1900: 781. Thiele. Über das Leuchten der Auerglühkörper.

Ber., 1900, **33**, 183–187; Ztschr. anorgan. Chem., 1900, **24**, 150; J. Chem. Soc. Lond., 1900, **78**, **2**, 208–209; Bull. soc. chim. Paris, 1900, [**3**], **24**, 446; Beibl. Ann. der Phys., 1900, **24**, 259; Fortschr. Phys., 1900, **56**^{2}, 90–91.

1900: 782. Du Bois and Liebknecht. Molekulare Susceptibilität der salze seltener Erden.

Ber., 1900, **33**, 975–977; J. Chem. Soc. Lond., 1900, **78**, **2**, 333; Bull. soc. chim. Paris, 1900, [**3**], **24**, 513, 551–552; Beibl. Ann. der Phys., 1900, **24**, 701; 1900, **24**, 56 Lit. Uebers; Fortschr. Phys., 1900, **56**^{2}, 686–687; Chem. Centrbl., 1900, **71**, **I**, 947.

1900: 783. Von Knorre. Ueber die Bestimmung des Cers.

Ber., 1900, **33**, 1924–1929; Chem. News, 1901, **83**, 264; Analyst., 1900, **25**, 329–330; J. Chem. Soc. Lond., 1900, **78**, **2**, 576; Bull. soc. chim. Paris, 1900, [**3**], **24**, 804–805; Ztschr. angew. Chem., 1900, **13**, 1059; J. Gasbel., 1900, **43**, 642; Chem. Centrbl., 1900, **71**, **II**, 398.

1900: 784. Rosenheim and Schilling. Über Salze des Thoriums.

Ber., 1900, **33**, 977–980; Ztschr. anorgan. Chem., 1900, **25**, 270; J. Chem. Soc. Lond., 1900, **78**, **2**, 351; Chem. News, 1901, **83**, 143; Bull. soc. chim. Paris, 1900, [**3**], **24**, 553–554; Chem. Centrbl., 1900, **71**, **I**, 947.

1900: 785. Debierne. Sur un nouvel élément radio-actif; l'actinium.

C. R., 1900, **130**, 906–908; Ztschr. anorgan. Chem., 1900, **25**, 270; Chem. News, 1900, **81**, 169, 267; J. Chem. Soc. Lond., 1900, **78**, **2**, 350–351; Revue Gen. Sci., 1900, **11**, 615; Naturw. Rundschau., 1900, **15**, 283–284, 503; Revue Sci., 1900, [**4**], **13**, 501; Ztschr. physikal. chem. unterricht., 1900, **13**, 225–231; Cosmos, 1900, [**4**], **43**, 187; Ztschr. physikal. Chem., 1900, **35**, 106; Ztschr. angew. Chem., 1900, **13**, 492; Am. J. Sci., 1900, [**4**], **9**, 444; Beibl. Ann. der Phys., 1900, **24**, 579; 1900, **24**, 63 Lit. Uebers; Fortschr. Phys., 1900, **56**^{2}, 111; Jahrb. Erfind., 1900, **37**, 190; Chem. Centrbl., 1900, **71**, **I**, 1059–1060; Science Abstracts, 1900, **3**, 533–534.

1900: 786. Witt and Theel. Beiträge zur kenntnis der Ceriterden.

Ber., 1900, **33**, 1315–1324; Ztschr. anorgan. Chem., 1900, **25**, 272; J. Chem. Soc. Lond., 1900, **78**, **2**, 403–404; Bull. soc. chim., Paris, 1901, [**3**], **26**, 2; Ztschr. angew. Chem., 1900, **13**, 645; Chem. Centrbl., 1900, **71**, **I**, 1260.

1900: 787. Muthmann and Baur. Einige Beobachtungen über Luminescenz-spectren.

Ber., 1900, **33**, 1748–1763; J. Chem. Soc. Lond., 1900, **78**, **2**, 544–545; Bull. soc. chim. Paris, 1900, [**3**], **24**, 865–866; Beibl. Ann. der Phys., 1900, **24**, 1126–1127; 1900, **24**, 96 Lit. Uebers; Ztschr. physikal. Chem., 1901, **38**, 374–375; Fortschr. Phys., 1900, **56**^{2}, 69–70; Chem. Centrbl., 1900, **71**, **II**, 233–234.

1900: 788. Von Lengyel. Ueber radioactives Baryum. (Vorläufige Notiz.)

Ber., 1900, **33**, 1237–1240; Chem. News, 1900, **82**, 25–26; Ztschr. anorgan. Chem., 1900, **25**, 271; J. Chem. Soc. Lond., 1900, **78**, **2**, 402; Bull. soc. chim. Paris, 1900, [**3**], **24**, 694–695; Revue Sci., 1900, [**4**], **14**, 375–376; Am. Chem. J., 1900, **24**, 98–99; Beibl. Ann. der Phys., 1900, **24**, 937; Am. J. Sci., 1900, [**4**], **10**, 74–75; Ztschr. physikal. chem. unterricht, 1900, **13**, 343–346; Naturw. Rundschau., 1900, **15**, 317; Ztschr. angew. Chem., 1900, **13**, 643; Fortschr. Phys., 1900, **56**^{2}, 112; Science, 1900, **12**, 194, 314–315; Chem. Centrbl., 1900, **71**, **I**, 1191–1192; Science Abstracts, 1900, **3**, 629.

1900: 789. Meyer and Jacoby. Über die Doppelnitrate des vierwertigen Cers und des Thoriums. (Vorläufige Mittheilung.)

Ber., 1900, **33**, 2135–2140; Ztschr. anorgan. Chem., 1901, **26**, 204; Chem. News, 1901, **83**, 252; J. Chem. Soc. Lond., 1900, **78**, **2**, 597; Bull. soc. chim. Paris, 1900, [**3**], **24**, 803–804; Chem. Centrbl., 1900, **71**, **II**, 419–420.

1900: 790. Muthmann and Baur. Untersuchung des käuflichen Thorium nitrats und den Auer'schen Glühkörper.

Ber., 1900, **33**, 2028–2031; Ztschr. anorgan. Chem., 1901, **26**, 204; Analyst, 1900, **25**, 328–329; Chem. News, 1901, **83**, 264; J. Chem. Soc. Lond., 1900, **78**, **2**, 597; Bull. soc. chim. Paris, 1900, [**3**], **24**, 804; S. of M. Quar., 1901, **23**, 102; Beibl. Ann. der Phys., 1900, **24**, 1121–1122; 1900, **24**, 105 Lit. Uebers; Ztschr. physikal. Chem., 1901, **38**, 375; Ztschr. angew. Chem., 1900, **13**, 963; Progressive Age, 1900, **18**, 501; Chem. Centrbl., 1900, **71**, **II**, 420–421.

1900: 791. Meyer and Marckwald. Zur Trennung der Ceriterden aus Monazitsand.

Ber., 1900, **33**, 3003–3013; Ztschr. angew. Chem., 1901, **14**, 87–88; Ztschr. anorgan. Chem., 1901, **26**, 266; J. Gasbel., 1901, **44**, 107; J. Chem. Soc. Lond., 1901, **80**, **2**, 21; Analyst, 1901, **26**, 136–137; Bull. soc. chim. Paris, 1901, [**3**], **26**, 68–70; Chem. Centrbl., 1900, **71**, **II**, 1229–1230.

1900: 792. Baur. Über die Theorie der Gasglühstrümpfe.

Ztschr. angew. Chem., 1900, **13**, 1055–1057; Ztschr. anorgan. Chem., 1901, **26**, 266; Monit. Sci. Quesneville, 1901, [**4**], **15**, **1**, 257–259; Fortschr. Phys., 1900, **56**^{2}, 98; Chem. Centrbl., 1900, **71**, **II**, 1042.

1900: 793. Pissarjewsky. Hyperoxyde des Zirkoniums, Cers und Thoriums. Thermochemische Untersuchungen.

J. Russ. Phys. Chem. Ges., 1900, **32**, 609–627; Ztschr. physikal. Chem., 1902, **39**, 254; Ztschr. anorgan. Chem., 1901, **26**, 266; J. Chem. Soc. Lond., 1901, **80**, **2**, 56; Chem. Centrbl., 1901, **71**, **I**, 86–87.

1900: 794. Mauzelius. Minéraux nouveaux.

Bull. soc. franç. min., 1900, **23**, 25–36; Chem. Centrbl., 1900, **71**, **I**, 1304–1306.

1900: 795. Fock. Chemisch-Krystallographische Notizen.

Ztschr. Kryst., 1899–1900, **32**, 250–257; Ztschr. physikal. Chem., 1901, **37**, 755; Chem. Centrbl., 1900, **71**, **I**, 534, 580.

1900: 796. Chavastelon. Sur la séparation des terres rares.

C. R., 1900, **130**, 781–782; Bull. soc. chim. Paris, 1900, [**3**], **23**, 342–343; J. Chem. Soc. Lond., 1900, **78**, **2**, 346–347; Chem. News, 1900, **81**, 179–180; Monit. Sci. Quesneville, 1900, [**4**], **14**, **1**, 346–347; Revue Sci., 1900, [**4**], **13**, 404–405; Revue Gen. Sci., 1900, **11**, 561; Chem. Centrbl., 1900, **71**, **I**, 876.

1900: 797. Pissarjewsky. Die Superoxyde des Zirkoniums, Ceriums und Thoriums. Thermochemische Untersuchung.

Ztschr. anorgan. Chem., 1900, **25**, 378–398; Beibl. Ann. der Phys., 1901, **25**, 15–16; 1901, **25**, 5 Lit. Uebers.

1900: 798. Schirmeisen. Zur Ausgestaltung des periodischen Systems der chemischen Elemente.

Ztschr. physikal. Chem., 1900, **33**, 223–236; Bull. soc. chim. Paris, 1901, [**3**], **26**, 834; Ztschr. anorgan. Chem., 1900, **25**, 201; J. Chem. Soc. Lond., 1900, **78**, **2**, 397; Beibl. Ann. der Phys., 1900, **24**, 728–729; 1900, **24**, 57, 107 Lit. Uebers; Naturw. Rundschau., 1900, **15**, 401–403; Chem. Centrbl., 1900, **71**, **1**, 1193; Science Abstracts, 1900, **3**, 567–568.

1900: 799. Matignon. Vorlesungsversuche betreffend die Absorption von Wasserstoff und Stickstoff durch die seltenen Erde.

Deutsche Chemiker Ztg., 1900, **24**, 1062; Ztschr. anorgan. Chem., 1901, **26**, 262; J. Gasbel., 1901, **44**, 51; Chem. Centrbl., 1901, **72**, **I**, 86.

1900: 800. Matignon. Combinaison directe de l'hydrogène avec les métaux du groupe des terres rares.

C. R., 1900, **131**, 891–893; Ztschr. anorgan. Chem., 1901, **26**, 262; Ztschr. Elektrochem., 1901, **7**, 434; J. Chem. Soc. Lond., 1901, **80**, **2**, 61; Chem. News, 1900, **82**, 303; Chem. Ztg., 1900, **24**, 1094; Nature, 1900–1901, **63**, 147; Science, 1901, **13**, 435; Revue Gen. Sci., 1900, **11**, 1349; Chem. Centrbl., 1901, **72**, **I**, 85.

1900: 801. Hofmann and Strauss. Radioaktives Blei und radioaktive seltene erden.

Ber., 1900, **33**, 3126–3131; J. Chem. Soc. Lond., 1901, **80**, **2**, 19; Ztschr. anorgan. Chem., 1901, **26**, 265–266; Bull. soc. chim. Paris, 1901, [**3**], **26**, 68; Jahrb. Min., 1902, **95**, **1**, 336; Chem. Ztg. Rep., 1900, **24**, 361; Naturw. Rundschau., 1900, **15**, 647; Ztschr. angew. Chem., 1901, **14**, 86–87; Beibl. Ann. der Phys., 1901, **25**, 80; 1901, **25**, 2 Lit. Uebers; Fortschr. Phys., 1900, **56**^{2}, 112–113; Chem. Centrbl., 1900, **71**, **II**, 1230.

1900: 802. Formánek. Nachweis der Metallsalze mittelst der Absorptionsspectral analyse unter Verwendung von Alkanna. Mit Tafel II. I.

Ztschr. anal. Chem., 1900, **39**, 409–434; Bull. soc. chim. Paris, 1901, [**3**], **26**, 953; J. Chem. Soc. Lond., 1900, **80**, **2**, 128–129; Fortschr. Phys., 1900, **56**^{2}, 68; Chem. Centrbl., 1900, **71**, **II**, 741.

1900: 803. Formánek. Nachweis der Metallsalze mittelst der Absorptionsspectral analyse unter Verwendung von Alkanna. Mit Tafel IV. II.

Ztschr. anal. Chem., 1900, **39**, 673–693; Chem. Centrbl., 1901, **72**, **I**, 275.

1900: 804. Matignon. Combinaison directe de l'azote avec les métaux du groupe des terres rares.

C. R., 1900, **131**, 837-839; J. Chem. Soc. Lond., 1901, **80**, **2**, 60–61; Bull. soc. chim. Paris, 1901, [**3**], **25**, 335; Chem. News, 1900, **82**, 290; Ztschr. Elektrochem., 1901, **7**, 434; Nature, 1900–1901, **63**, 123–124; Chem. Ztg., 1900, **24**, 1066; Science, 1901, **13**, 435; Revue Sci., 1900, [**4**], **14**, 695, 724; Revue Gen. Sci., 1900, 11, 1288; Chem. Centrbl., 1901, **72**, **I**, 85.

1900: 805. Crookes. Radio-activity of Uranium.

Roy. Soc. Lond. Proc., 1899–1900, **66**, 409–423; J. Chem. Soc. Lond., 1900, **78**, **2**, 586–587; Chem. News, 1900, **81**, 253–255, 265–267; Ztschr. anorgan. Chem., 1901, **26**, 206; Am. J. Sci., 1900, [**4**], **10**, 318–319; Revue Gen. Sci., 1900, **11**, 949–950; Naturw. Rundschau., 1901, **16**, 39; J. Phys., 1901, [**3**], **10**, 363; Beibl. Ann. der Phys., 1900, **24**, 849; 1900, **24**, 83, 99 Lit. Uebers; Fortschr. Phys., 1900, **56**^{2}, 110–111; Chem. Centrbl., 1900, **71**, **II**, 364–365.

1900: 806. Afanassiew. Über die Einwirkung von Uran und Thorium enthaltenden Mineralien auf die photographische Platte.

J. Russ. Phys. Ges., 1900, **32**^{2} (Phys. Teil), 103–106; J. Chem. Soc. Lond., 1900, **78**, **2**, 702; Beibl. Ann. der Phys., 1900, **24**, 1022; 1900, **24**, 89 Lit. Uebers; Bull. soc. franç. min., 1900, **23**, 232; Fortschr. Phys., 1900, **56**^{2}, 124, 154–155; Chem. Centrbl., 1900, **71**, **II**, 415.

1900: 807. Bose and Jüttner. Über die Eigenschaften der Becquerel-Strahlen.

Chem. Ztg., 1900, **24**, 417–420; J. Gasbel., 1900, **43**, 541; Chem. Centrbl., 1900, **71**, **II**, 3.

1900: 808. Curtius and Darapsky. Neue Untersuchungen über den Stickstoffwasserstoff, N_3H.

J. prakt. Chem., 1900, [**2**], **61**, 408–422; Chem. Centrbl., 1900, **71**, **II**, 15–16.

1900: 809. Nernst and Bose. Zur Theorie des Auerlichtes.

Phys. Ztschr., 1899–1900, **I**, 289–291; J. Gasbel., 1900, **44**, 412–413; J. Soc. Chem. Ind., 1901, **20**, 791–792; Naturw. Rundschau., 1900, **15**, 363; Fortschr. Phys., 1900, **56**^{2}, 9; Progressive Age, 1900, **17**, 323;

1901, **19**, 129; Gas World, 1900, June 16; Journal des Usines à Gaz, 1901, Feb. 5; Wagner's Jsb., 1901, **47**, 106; Beibl. Ann. der Phys., 1900, **24**, 470–471; 1900, **24**, 60 Lit Uebers; Science Abstracts, 1900, **3**, 625–626.

1900: 810. Samtleben. Ueber den Einfluss von Lichtgebern auf die Lichtstärke des Auerlichts.

J. Gasbel., 1900, **43**, 569–570; Ztschr. angew. Chem., 1900, **13**, 966; Chem. Centrbl., 1900, **71**, **II**, 601–602.

1900: 811. Bowman. Beiträge zur Kenntniss des Monazit.

Ztschr. Kryst., 1900, **33**, 113–126, mit Tafn. III, Figs. 1–7; Jahrb. Min., 1902, **95**, **I**, 185–186 Ref.; Bull. soc. franç. min., 1900, **23**, 267–268; Min. Mitth., 1901, **20**, 182, Lit Notiz; Chem. Centrbl., 1900, **71**, **II**, 815.

1900: 812. Derby. Notes on monazite.

Am. J. Sci., 1900, [**4**], **10**, 217–221; Ztschr. Kryst., 1902, **36**, 69; Nature, 1900, **62**, 568; Progressive Age, 1900, **18**, 473–474; Chem. Centrbl., 1900, **71**, **II**, 815–816.

1900: 813. Baur. Verfahren zur Darstellung eines von den übrigen seltenen Erden freien Thorpräparates.

Deutsche Patentschr. Nr. 120,013 Kl. 12 m. vom. 19/5, 1900 [19/4, 1901]; Ztschr. angew. Chem., 1901, **14**, 476; Chem. Centrbl., 1901, **72**, **I**, 1024.

1900: 814. Brauner. Contribution to the chemistry of thorium.

Chem. Soc. Lond. Proc., 1900, **17**, 67–68; Chem. News, 1901, **83**, 197–198; Ztschr. anorgan. Chem., 1901, **28**, 374; Nature, 1900–1901, **63**, 626–627; Beibl. Ann. der Phys., 1901, **25**, 587; Chem. Centrbl., 1901, **72**, **I**, 1036–1037.

1900: 815. ———. The Welsbach Light.

Science, 1900, **12**, 951–956; Beibl. Ann. der Phys., 1901, **25**, 14 Lit Uebers.

1900: 816. Howe. The Eighth Group of the Periodic System and some of its Problems.

Proc. Am. Assoc. Adv. Sci., 1900, **49**, 83–118; Chem. News, 1900, **82**, 15–17, 30–33, 37–39, 52–54; Science, 1900, **11**, 1012–1020; 1900, **12**, 20–34; Ztschr. anorgan. Chem., 1900, **25**, 468; Naturw. Rundschau., 1900, **15**, 481–484, 493–496; Beibl. Ann. der Phys., 1900, **24**, 1225; J. Am. Chem. Soc., 1900, **22**, in Review of Am. Chem. Research, 1900, **6**, 148; Chem. Centrbl., 1900, **71**, **II**, 553.

1900: 817. Nernst and Wild. Einiges über das Verhalten elektrolytischer Glühkörper.

Ztschr. Elektrochem., 1900, **7**, 373–376; J. Gasbel., 1901, **44**, 133; Ztschr. anorgan. Chem., 1901, **26**, 354–355; Ztschr. angew. Chem., 1901, **14**, 277; Fortschr. Phys., 1900, **56**^{2}, 582; Beibl. Ann. der Phys., 1901, **25**, 197–198; Chem. Centrbl., 1901, **72**, **I**, 213–214; Science Abstracts, 1901, **4**, 279–300.

1900: 818. Curie. Les nouvelles Substances radioactives. Read before Soc. de Sécours des Amis des Sciences, June 14, 1900.

Revue Sci., 1900, [**4**], **14**, 65-71.

1900: 819. Bryan. Sources and properties of Becquerel Rays.

Nature, 1900, **62**, 151–154.

1900: 820. Diergart. Etymologische Untersuchungen über diejenigen Namen der chemischen Elemente, welche ihren internationalen und nationalen Sigeln zu Grunde liegen, mit besonderer Berücksichtigung ihrer deutschen Benennungen.

J. prakt. Chem., 1900, **169**, 497–531; Ztschr. physikal. Chem., 1902, **39**, 711.

1900: 821. Bowman. On Monazite and associated minerals from Tintagel, Cornwall.

Min. Mag., 1900, **12**, 358–362, with 5 Figs.; Jahrb. Min., 1902, **95**, **I**, 188–189 Ref.; Ztschr. Kryst., 1902, **36**, 168–170; Min. Mitth., 1901, **20**, 182 Lit.

1900: 822. Ladureau. L'incandescence du thorium.

Vie Sci.. 1900, 2 S., 188–189; Rep. tech. jour.-lit., 1900, **22**, 62.

1900: 823. Hoffman. Report of the Section of Chemistry and Mineralogy.

Geological Survey of Canada, Report R, 1900, vol. XI, pp. 55; Am. J. Sci., 1900 [**4**], **10**, 404.

1900: 824. ———. On Wave-length Tables of the Spectra of the Elements and Compounds. Report of the Committee, consisting of Sir H. E. Roscoe, Dr. Marshall Watts, Sir J. N. Lockyer, Prof. J. Dewar, Prof. G. D. Liveing, Prof. A. Schuster, Prof. W. N. Hartley, Prof. W. Gibbs, and Capt. Abney. Index to Tables, 1884–1900.

Brit. Assoc. Adv. Sci., 1900, 193–297.

1900: 825. Article on "Thor."

Erdmann's Lehrbuch anorganischer Chemie, 1900, Zweites auflage, 582–584.

1900: 826. Derôme. Les terres rares et l'incandescence.

La Nature, 1900, **54**, 338–340.

1900: 827. Notice. Les terres rares à l'Exposition universelle.

Revue de physique et de chimie, 1900; Cosmos, 1900, [**4**], **43**, 159–160.

1900: 828. Siemens and Halske. Darstellung von Thoriummetall.

Deutsche Reichs-Patent 133,958, July 31, 1900; Chem. Ztg., 1902, **26**, 829.

1900: 829. Report of the Franklin Institute. The Welsbach Light. Award of Elliott Cresson Medal.

J. Frankl. Inst., 1900, **150**, 158, 406–415; J. Gasbel., 1901, **44**, 50; Progressive Age, 1900, **18**, 477, 535.

1900: 830. Love. The Theory of the Incandescent Gas Light. (A lecture delivered by Dr. E. G. Love, official gas examiner for the city of New York, at the 28th annual meeting of the American Gas Light Association, Denver, Col., October 17 to 20.)

Am. Gas Light J., 1900, **73**, 728–729; Progressive Age, 1900, **18**, 510–511.

1900: 831. Du Bois. Propriétés magnétiques de la matière pondérable.

Rapports présentés au Congrès International de Physique, Paris, 1900, **2**, 460–508.

1900: 832. C. E. C. Notes on Polonium and Radium.

Am. Chem. J., 1900, **23**, 262–265.

1900: 833. Notice. Les métaux rares.

L'Echo des Mines, 1900; Cosmos, 1900, [**4**], **43**, 386.

1900: 834. Richards. A Table of Atomic Weights of Seventy-four Elements, compiled in April, 1900, from the most Recent Data.

Proc. Am. Acad. Arts and Sci., 1899–1900, **35**, 621; Ztschr. physikal. Chem., 1901, **36**, 624; J. Am. Chem. Soc., 1900, **22**, in Review of Am. Chem. Research, 1900, **6**, 144.

1900: 835. Lenher. Rare Elements.

The Mineral Industry, New York, 1900, **9**, 568–584; Progressive Age, 1901, **19**, 353.

1900: 836. De Marsy. La Lumière Noire et les formes ultimes de la matière.

La Nature, 1900, **55**, 1–3; Beibl. Ann. der Phys., 1900, **24**, 851; Fortschr. Phys., 1900, **56**^{2}, 650-651.

1900: 837. Giesel. Ueber radio-active Stoffe.

Ber., 1900, **33**, 3569–3571; Chem. News, 1901, **83**, 122–123; Ztschr. anorgan. Chem., 1900, **27**, 316; Bull. soc. chim. Paris, 1901, [**3**], **26**, 129; J. Chem. Soc. Lond., 1900, **78**, **2**, 19–20; 1901, **80**, **2**, 99; Ztschr. angew. Chem., 1901, **14**, 227–228; Naturw. Rundschau, 1900, **15**, 103; Beibl. Ann. der Phys., 1901, **25**, 317; 1901, **25**, 22, 59 Lit. Uebers; Fortschr. Phys., 1900, **56**^{2}, 124; Chem. Centrbl., 1901, **72**, **I**, 355; Science Abstracts, 1901, **4**, 839.

1900: 838. Ephraim. Die Vorschläge zur Reform des Patentgesetzes.

Ztschr. angew. Chem., 1900, **13**, 457–463.

1900: 839. Erdmann. Der siebente Jahresbericht der amerikanischen Commission für Atomgewichte.

Ztschr. angew. Chem., 1900, **13**, 463–464.

1900: 840. Note. Zur Lage des Thoriummarktes.

Ztschr. angew. Chem., 1900, **13**, 122.

1900: 841. Köthner. Ueber selbststrahlende Materie.

Ztschr. angew. Chem., 1900, **13**, 81–85.

1900: 842. Séquard, Douilhet et Chenel. "Die Gewinnung der seltenen Erden aus den Monazitsanden."

Report of meeting. IV. Internationaler Congress für angewandte Chemie in Paris vom 23–28 Juli, 1900; Section II. Industrie der anorganischen Producte; Ztschr. angew. Chem., 1900, **13**, 792–795; J. Gasbel., 1900, **43**, 698; Progressive Age, 1900, **18**, 431.

1900: 843. Müller. Bericht über die Ausstellung in der Technischen Hochschule.

Ztschr. angew. Chem., 1900, **13**, 1103–1108.

1900: 844. Dawson and Williams. On the Determination of Transition Temperatures.

J. Phys. Chem., 1900, **4**, 370–382; Beibl. Ann. der Phys., 1900, **24**, 1092–1093; 1900, **24**, 115 Lit. Uebers.

1900: 845. Meyer and Schweidler. Versuche über die Absorption von Radium-strahlen.

Phys. Ztschr., 1899–1900, **1**, 209–211; Science Abstracts, 1900, **3**, 694.

1900: 846 Rasch. (On colors.)

Bayerischen Industrie-und Gewerbeblatt, 1900, 28; Kraft und Licht., 1900, July 13; Progressive Age, 1901, **19**, 371.

1900: 847. Note. Incandescent Gas Light.

Lux; Scientific American, 1900, **83**, 122; Progressive Age, 1900, **18**, 385.

1900: 848. Dorn. Über die von Radioaktiven Substanzen Ausgesandte Emanation.

Abh. d. naturf. Ges. Halle, 1900, **23**, pp. 15; mit 2 Figuren im Text Beibl. Ann. der Phys., 1900, **24**, 1343; Fortschr. Phys., 1900, **56**^{2}, 110.

1900: 849. ———. Becquerel Rays and Energy required to produce an Ion in Gases.

Nature, 1900–1901, **63**, 50.

1900: 850. Pierron. (Automatic Gas Lighting.)

Le Gaz., 1900, August 15; Progressive Age, 1900, **18**, 477.

1900: 851. Hering. The Paris Exhibition of 1900.

Trans. Am. Inst. Electrical Engineers, 1900, **17**, 587–611, October; Progressive Age, 1901, **19**, 5–6.

1900: 852. Becquerel. Sur le rayonnement de l'uranium et sur diverses propriétés physiques du rayonnement des corps radioactifs.

Rapports présentés au Congrès International de Physique, Paris, 1900, **3**, 47–78; Science Abstracts, 1901, **4**, 1025.

1900: 853. P. Curie and Mme. S. Curie. Les nouvelles substances radio actives et les rayons qu'elles émettent.

Rapports présentés au Congrès International de Physique, Paris, 1900, **3**, 79–114; Science Abstracts, 1901, **4**, 935.

1900: 854. Prince Kropotkin. Recent Science. I. Unsuspected Radiations. II. Insects and Malaria.

Nineteenth Century, 1900, **48**, 919–940; Annual Report of the Smithsonian Institution for year ending June 30, 1900, 371–385.

1900: 855. Note. Becquerel Rays.

El. Rev., N. Y.; 1900, **46**, 379–380; J. Gasbel., 1900, **43**, 470.

1900: 856. Mie. Die Becquerel'schen Strahlen.

J. Gasbel., 1900, **43**, 714-718.

1900: 857. Correspondence by Schoonjans. Missbräuche in der Gasglühlichtbranche.

J. Gasbel., 1900, **43**, 837-838.

1900: 858. Blondel. Les progrès des lampes électriques.

L'Éclairage Électrique, 1900, **24**, 342–356, 464–471; J. Gasbel., 1900, **43**, 939.

1900: 859. Wyrouboff and Verneuil. La chimie des terres rares.

Revue Sci., 1900, [**4**], **13**, 513–520, 616–622; Le Mois Scient. et Ind., 1901, **2**, 250–252; J. Soc. Chem. Ind., 1901, **20**, 148; Progressive Age, 1900, **18**, 365.

1900: 860. Bell. Elements of Illumination. XV Paper.

Electrical World and Engineer, 1900, **36**, 806–808; Progressive Age, 1900, **18**, 551.

1900: 861. ———. Ueber die Entwickelung der Nernst'schen Glühlampe.

Elektrotechnischer Anzeiger, 1900, Nr. 23; J. Gasbel., 1900, **43**, 336, 414–415.

1900: 862. Liebenthal. Die Leuchtkraft von Glühkörpern.

Verhandl. XXXX Jahresversammlung des Deutschen Vereins von Gas-und Wasserfächmännern zu Mainz, 1900; J. Gasbel., 1900, **43**, 495–503; J. Gas L., 1900, **77**, 994–976; Progessive Age, 1901, **19**, 218–219.

1900: 863. Bunte. Glühkörpern. (Remarks on above paper.)

J. Gasbel., 1900, **43**, 499.

1900: 864. Liebenthal. Ueber die Zeitliche Veränderung der Leuchtkraft von Gasglühkörpern.

Verhandl. XXXX Jahresversammlung des Deutschen Vereins für Gas-und Wasserfächmännern zu Mainz, 1900; J. Gasbel., 1900, **43**, 665–667; Fortschr. Phys., 1900, **56**^{2}, 98–99; Progressive Age, 1900, **18**, 431.

1900: 865. Bunte. (Remarks on above paper.)

J. Gasbel., 1900, **43**, 667–669.

1900: 866. Salzenberg. Das Kugellicht mit Pressluft.

Verhandl. XXXX Jahresversammlung des Deutschen Vereins für Gas-und Wasserfächmännern zu Mainz, 1900; J. Gasbel., 1900, **43**, 685–691; Wagner's Jsb., 1900, **46**, 71.

1900: 867. Liebenthal. (The Life of Incandescent Mantles.)

"Compte Rendu" of the International Gas Congress, Paris, 1900.

1900: 868. Liebenthal. Die Leuchtkraft von Glühkörpern. (A supplement to Dr. Bunte's paper "Ueber Gasglühlicht.") Vortrag auf dem internationalen Gascongress in Paris, 1900.

J. Gasbel., 1900, **43**, 971–973; J. Gas L., 1900, **76**, **1**, 630, 642–643; J. Soc. Chem. Ind., 1900, **19**, 999–1000; Progressive Age, 1900, **18**, 529.

1900: 869. ——. (Discussion of the Development of the Welsbach Mantle.)

Le Moniteur de l'Industrie du Gaz, 1900, May 15; Progressive Age, 1900, **18**, 343.

1900: 870. Note. Ueber die selbstthätigen zünder für Gasglühlichtbrenner.

Journal des Usines à Gaz; Dingl. pol. J., 1900, **315**, 211–212.

1900: 871. Stewart. Becquerel Rays, a Résumé.

The Physical Review, 1900, **11**, 155–175; J. Am. Chem. Soc., 1901, **23**, in Review of Am. Chem. Research, 1901, **7**, 158; Beibl. Ann. der Phys., 1900, **24**, 1344; Science Abstracts, 1901, **4**, 27.

1900: 872. Note. Recent Developments in Nernst Lamps.

The Electrician, London, 1900, **44**, 853–854; Beibl. Ann. der Phys., 1900, **24**, 601; 1900, **24**, 68 Lit. Uebers.

1900: 873. Lewes. The Incandescent Gas Mantle and its Uses. Three Cantor Lectures delivered before the Society of Arts.

J. Society of Arts, 1899–1900, **48**, 460, 841–847, 853–859, 865–873; J. Gas L., 1900, **75**, 920, 1048; Progressive Age, 1900, **18**, 308–310, 336–338, 350–353; Science Abstracts, 1901, **4**, 293.

1900: 874. Notice. The Mineral Industry, New York, 1900, volume 9.

Progressive Age, 1901, **19**, 336–337.

1900: 875. Note. Large deposits of the rare earths found in Central Tasmania.

Scientific American, 1900, **83**, 74; Progressive Age, 1900, **18**, 407.

1900: 876. Lewes. The Incandescent Gas Mantle and its Uses.

Am. Gas Light J., 1900, **73**, 806–809, 842–845, 882–886.

1900: 877. Salomon. La lampe Nernst.

L'Industrie électrique, 1900; Cosmos, 1900, [**4**], **43**, 33–34.

1900: 878. Lewes. The Incandescent Gas Mantle and its Uses.

J. Gas L., 1900, **75**, 1299–1302, 1360–1362, 1436–1439.

1900: 879. Notice. Les métaux rares.

Moniteur industriel, 1900; Cosmos, 1900, [**4**], **43**, 707.

1900: 880. Rutherford. Über eine von Thoriumverbindungen emittierte radioaktive Substanz.

Phys. Ztschr., 1899–1900, **I**, 347–348; Beibl. Ann. der Phys., 1900, **24**, 79 Lit. Uebers.

1900: 881. Hillebrand. Some Principles and Methods of rock analysis.

Bull. U. S. Geol. Survey, 1900, **176**, pp. 114; Chem. News, 1901, **83**, 66–70; 80–81, 88–91, 101–102, 111–113, 127–128, 136–138, 150–151, 164–166, 175–178, 184–187, 195–196, 211–213, 218–220, 231–235, 246–247, 254–256.

1901: 882. Baskerville. "Contribution to the Chemistry of Thorium; Evidence Pointing to the Existence of a New Element, 'Carolinium.'"

Proc. Am. Chem. Soc., 1901, **23**, 99–100.

1901: 883. Rutherford and McClung. Energy of Röntgen and Becquerel Rays, and the Energy Required to produce an Ion in Gases.

Roy. Soc. Lond. Proc., 1901, **67**, **2**, 245–250; Phil. Trans. Roy. Soc. Lond., 1901, No. **196**, 25–59; Science Abstracts, 1901, **4**, 370–371.

1901: 884. Hofmann and Strauss. Ueber das radio-active Blei. (Vorläufige Mittheilung.)

Ber., 1901, **34**, 8–11; J. Chem. Soc. Lond., 1901, **80**, **2**, 159; Am. J. Sci., 1900, [**4**], **11**, 235; Ztschr. angew. Chem., 1901, **14**, 228; Bull. soc. chim. Paris, 1901, [**3**], **26**, 244–245; La Nature, 1901, **57**, 46; Berg. u. H. Ztg., 1901, **60**, n. s. **55**, 258; Jahrb. Min., 1902, **95**, **1**, 336; Beibl. Ann. der Phys., 1901, **25**, 317–318; 1901, **25**, 22 Lit Uebers; Naturw. Rundschau, 1901, **16**, 183–184; Chem. Centrbl., 1901, **72**, **I**, 438–439.

1901: 885. Hofmann, Korn, and Strauss. Über die Einwirkung von Kathodenstrahlen auf radioaktive Substanzen. I Mittheilung.

Ber., 1901, **34**, 407–409; J. Chem. Soc. Lond., 1901, **80**, **2**, 216; Bull. soc. chim. Paris, 1901, [**3**], **26**, 245; Jahrb. Min., 1902, **95**, **1**, 336; Ztschr. physikal. Chem., 1902, **41**, 234; Ztschr. anorgan. Chem., 1901, **27**, 316; Naturw. Rundschau, 1901, **16**, 216; Ztschr. angew. Chem., 1901, **14**, 393; Nature, 1900–1901, **63**, 405; Beibl. Ann. der Phys., 1901, **25**, 397–398; 1901, **25**, 51 Lit. Uebers; Chem. Centrbl., 1901, **72**, **I**, 660–661.

1901: 886. Hofmann and Strauss. Über die Einwirkung von Kathodenstrahlen auf radioaktive substanzen. II Mittheilung.

Ber., 1901, **34**, 907–913; Bull. soc. chim. Paris, 1901, [**3**], **26**, 951; La Nature, 1901, **57**, 46; Jahrb. Min., 1902, **95**, **1**, 336; Ztschr.

physikal. Chem., 1902, **41**, 235–236; Naturw. Rundschau., 1901, **16**, 291–292; Am. J. Sci., 1900, [**4**], **11**, 463; Ztschr. angew. Chem., 1901, **14**, 832–833; Ztschr. anorgan. Chem., 1901, **28**, 375; Berg. u. H. Ztg., 1901, **55**, n. s. **50**, 258; J. Chem. Soc. Lond., 1901, **80**, **2**, 385; Beibl. Ann. der Phys., 1901, **25**, 633–634; 1901, **25**, 81, 101 Lit. Uebers; Science, 1901, **13**, 831–832; Chem. Centrbl., 1901, **72**, **I**, 1084–1085.

1901 : 887. Hofmann and Strauss. Über das radioaktive Blei. III Mittheilung.

Ber., 1901, **34**, 3033–3039; Am. J. Sci., 1901, [**4**], **12**, 388; Bull. soc. chim. Paris, 1902, [**3**], **28**, 116; J. Soc. Chem. Ind., 1901, **20**, 1150; Naturw. Rundschau., 1901, **16**, 669; Ztschr. angew. Chem., 1901, **14**, 1305–1306; La Nature, 1901, **57**, 46; Ztschr. physikal. Chem., 1902, **41**, 634; Beibl. Ann. der Phys., 1901, **25**, 167 Lit. Uebers; Chem. Centrbl., 1901, **72**, **II**, 1038–1039.

1901 : 888. G. and E. Urbain. Sur l'isolement de l'yttria, de l'ytterbium et de la nouvelle erbine.

C. R., 1901, **132**, 136–138; Bull. soc. chim. Paris, 1901, [**3**], **25**, 383; J. Chem. Soc. Lond., 1901, **80**, **2**, 160–161; Chem. News, 1901, **83**, 82; Monit. Sci. Quesneville, 1901, [**4**], **15**, **I**, 220–221; Revue Sci., 1901, [**4**], **15**, 147–148; Revue Gen. Sci., 1901, **12**, 147; Beibl. Ann. der Phys., 1901, **25**, 327–328; 1901, **25**, 42 Lit. Uebers; Chem. Centrbl., 1901, **71**, **I**, 437–438.

1901 : 889. Matignon and Délepine. Composition de l'hydrure et de l'azoture de thorium.

C. R., 1901, **132**, 36–38, 232; Chem. News, 1901, **83**, 59–60; Ztschr. anorgan. Chem., 1901, **27**, 314; J. Chem. Soc. Lond., 1901, **80**, **2**, 106; Chem. Ztg., 1901, **25**, 71; Nature, 1900–1901, **63**, 292; Revue Sci., 1901, [**4**], **15**, 186; Revue Gen. Sci., 1901, **12**, 105; Chem. Centrbl., 1901, **71**, **I**, 295.

1901 : 890. Wyrouboff. Recherches sur les solutions.

Bull. soc. chim. Paris, 1901, [**3**], **25**, 105–130; J. Chem. Soc. Lond., 1901, **80**, **2**, 149–150; Ztschr. physikal. Chem., 1901, **37**, 626–727; Chem. News, 1901, **83**, 263; Beibl. Ann. der Phys., 1901, **25**, 27 Lit Uebers; Chem. Centrbl., 1901, **72**, **I**, 494–495.

1901 : 891. Drossbach. Verfahren zur Herstellung von Glühkörpern durch Verwendung höher oxydierter Thoriumsalze.

Deutsche Reichs-Patent Nr. 117,755 vom. 5, März 1899, Klasse 4; J. Gasbel., 1901, **44**, 763; Chem. Centrbl., 1901, **72**, **I**, 546.

1901 : 892. Hofmann and Heidepriem. Eine Bröggerit-analyse.

Ber., 1901, **34**, 914–915; J. Chem. Soc. Lond., 1901, **80**, **2**, 396; Bull. soc. chim. Paris, 1901, [**3**], **26**, 952; Chem. Centrbl., 1901, **72**, **I**, 1085.

1901 : 893. Stevens. Zur Kenntniss der Metathorsäure und des Metathoroxychlorids.

Ztschr. anorgan. Chem., 1901, **27**, 41–52; Bull. soc. chim. Paris, 1901, [**3**], **26**, 452–453; J. Chem. Soc. Lond., 1901, **80**, **2**, 391–392; Chem. Centrbl., 1901, **72**, **I**, 1034–1035.

1901: 894. **Herzfeld** and **Korn**. "Chemie der seltenen Erden," Berlin, 1901. (A review by Von Schéele and Benedicks.)

Ztschr. anorgan. Chem., 1901, **27**, 202–205.

1901: 895. **Herzfeld** and **Korn**. "Chemie der seltenen Erden," Berlin, 1901. (A review by Meyer.)

Ztschr. anorgan. Chem., 1901, **27**, 205–208.

1901: 896. **Herzfeld** and **Korn**. Chemie der seltenen Erden. Berlin, 1901. (A review by Witt.)

Die Chemische Industrie, 1901, **24**, 188; Beibl. Ann. der Phys., 1901, **25**, 36 Lit. Uebers.

1901: 897. **Wyrouboff**. Sur la forme cristalline de quelques sels de terres rares.

Bull. soc. franç. min., 1901, **24**, 105–116; Beibl. Ann. der Phys., 1901, **25**, 87 Lit. Uebers; Chem. Centrbl., 1901, **72**, **I**, 1353–1354, 1363.

1901: 898. **Wyrouboff**. Einige Bemerkungen zu der Abhandlung von H. P. Stevens über das Metathorium.

Ztschr. anorgan. Chem., 1901, **28**, 90–91; Bull. soc. chim. Paris, 1902, [**3**], **28**, 475; J. Chem. Soc. Lond., 1901, **80**, **2**, 604; Chem. Centrbl., 1901, **II**, 574.

1901: 899. **Küster**. Tabelle der Atomgewichte aufgestellt von der Atomgewichtkommission der Deutschen Chemischen Gesellschaft für Jahr 1901.

Beiläge zu den Ber., 1901, Heft I; Ztschr. anorgan. Chem., 1901, **26**, 350–354; Ztschr. physikal. chem. unterricht., 1900, **13**, 108; Science, 1901, **13**, 627.

1901: 900. **Hofmann** and **Prandtl**. Ueber die Zirkonerde im Euxenit von Brevig.

Ber., 1901, **34**, 1064–1069; Bull. soc. chim. Paris, 1901, [**3**], **26**, 451–452; Ztschr. anorgan. Chem., 1901, **28**, 374; Am. J. Sci., 1900, [**4**], **11**, 463–464; J. Soc. Chem. Lond., 1901, **80**, **2**, 387–388; Ztschr. angew. Chem., 1901, **14**, 589; Science, 1901, **13**, 832; Chem Centrbl., 1901, **72**, **I**, 1139–1141.

1901: 901. **Baskerville**. On the Existence of a new Element associated with Thorium.

J. Am. Chem. Soc., 1901, **23**, 761–774; Am. J. Sci., 1901, [**4**], **12**, 462; J. Soc. Chem. Ind., 1901, **20**, 1231–1232; Revue Sci., 1901, [**4**], **16**, 503; Ztschr. physikal. Chem., 1902, **41**, 378–379; J. Chem. Soc. Lond., 1902, **82**, **2**, 85; Chem. News, 1901, **84**, 179–181, 187–189; Beibl. Ann. der Phys., 1901, **25**, 177, 178 Lit. Uebers; Chem. Centrbl., 1901, **72**, **II**, 1145–1146; Science Abstracts, 1902, **5**, 218; Rep. tech. jour. lit., 1901, **23**, 119, 680.

1901: 902. **Baskerville**. "On the Existence of a New Element Associated with Thorium."

Proc. Am. Chem. Soc., 1901, **23**, 118.

1901 : 903. Kohlschütter. Ueber das Vorkommen von Stickstoff und Helium in Uranmineralien.

Ann. der Chem. (Liebig), 1901, **317**, 158–189; J. Chem. Soc. Lond., 1901, **80**, **2**, 598–599; Chem. Ztg. Rep., 1901, **25**, 229; Beibl. Ann. der Phys., 1901, **25**, 908–910; 1901, **25**, 129 Lit. Uebers; Ztschr. angew. Chem., 1901, **14**, 829–830; Chem. Centrbl., 1901, **72**, **II**, 656–657.

1901 : 904. Drossbach. Zur Chemie des Thoriums.

Ztschr. angew. Chem., 1901, **14**, 655–658; J. Gasbel., 1901, **44**, 883; Chem. Centrbl., 1901, **72**, **II**, 264–265.

1901 : 905. Miers. Rammelsberg Memorial Lecture.

J. Chem. Soc. Lond., 1901, **79**, 1–43; Chem. News, 1900, **82**, 277; 1901, **83**, 31.

1901 : 906. Sachs. Krystallographisch-optische studien an synthetisch dargestellten verbindungen.

Ztschr. Kryst., 1901, **34**, 158-170; Beibl. Ann. der Phys., 1901, **25**, 417–418; 1901, **25**, 54 Lit. Uebers; Min. Mitth., 1901, **20**, 265; Chem Centrbl., 1901, **72**, **I**, 872–873, 877.

1901 : 907. Jimbo. On the minerals of Japan.

Jour. College of Science, Tokyo, 1899, **9**, Part **II**, 213-280; Ztschr Kryst., 1901, **34**, 215–223; Jahrb. Min., 1900, **92**, **2**, 40–41.

1901 : 908. Kraus. Uber einige Salze der seltenen erden.

Inaug. Dissertation der Universität München; Ztschr. Kryst., 1901, **34**, 397–431; Bull. soc. franç. min., 1901, **24**, 452; J. Chem. Soc. Lond., 1901, **80**, **2**, 453; J. Gasbel., 1901, **44**, 514; Beibl. Ann. der Phys., 1901, **25**, 677; 1901, **25**, 99 Lit. Uebers; Chem. Centrbl., 1901, **72**, **II**, 15–16.

1901 : 909. Meyer and Jacoby. Die Doppelnitrate des vierwertigen Ceriums und des Thoriums.

Ztschr. anorgan. Chem., 1901, **27**, 359-389; J. Chem. Soc. Lond., 1901, **80**, **2**, 510–511; Bull. soc. chim. Paris, 1902, [**3**], **28**, 407–408; Chem. Centrbl., 1901, **72**, **I**, 167–168.

1901 : 910. Curie and Debierne. Sur la radio-activité induite provoquée par les sels de radium.

C. R., 1901, **132**, 548–551; J. Chem. Soc. Lond., 1901, **80**, **2**, 216–217; Am. J. Sci., 1901, [**4**], **12**, 319–320; Chem. News, 1901, **83**, 191; 1901, **84**, 25–26; Monit. Sci. Quesneville, 1901, [**4**], **15**, **I**, 285; Revue Gen. Sci., 1901, **12**, 288; Beibl. Ann. der Phys., 1901, **25**, 134, 172 Lit. Uebers; Cosmos, 1901, [**4**], **44**, 343, 441; Nature, 1900–1901, **63**, 556; Naturw. Rundschau., 1901, **16**, 278; Revue Sci., 1901, [**4**], **15**, 341; Phys. Ztschr., 1900–1901, **2**, 500-501, 513-514; Science Abstracts, 1901, **4**, 744.

1901 : 911. Note. Ueber die Basis der Atomgewichte.

Ztschr. Elektrochem., 1901, **7**, 493–494.

1901 : 912. ———. Die neuen Tabellen der Atomgewichte.

Ztschr. physikal. chem. unterricht., 1901, **14**, 119–121.

1901 : 913. ———. Becquerel-und Röntgenstrahlen.

Ztschr. physikal. chem. unterricht., 1901, **14**, 232–237.

1901 : 914. Rutherford. Emanationen.

Phys. Ztschr., 1900–1901, **2**, 429; Ztschr. physikal. chem. unterricht., 1901, **14**, 357–358; Naturw. Rundschau., 1901, **16**, 343–344.

1901 : 915. ———. Bibliography of Spectroscopy. Report of the Committee, consisting of Prof. H. McLeod (Chairman), Sir W. C. Roberts-Austen (Secretary), Mr. H. G. Madan, and Mr. D. H. Nagel.

Brit. Assoc. Adv. Sci., 1901, 155–208.

1901 : 916. Caspari. The new Radio-active Substances.

Am. Chem. J., 1901, **25**, 77–80; S. of M. Quar., 1902, **24**, 105.

1901 : 917. Besson. Les nouveaux métaux, Polonium, Radium et Actinium.

Mémoires et Compte rendu des travaux de la Société des Ingénieurs Civils de France, 1901, **1**, 459–470, 554–557, 677; Eng. and Min. Jour., 1901, **71**, 726; J. Soc. Chem. Ind., 1901, **20**, 845; Revue Sci., 1901, [**4**], **15**, 761–762; Electricien, Paris, 1901, ———; Berg. u. H. Ztg., 1901, **60**, n. s. **55**, 426–427.

1901 : 918. Erdmann. Ueber den gegenwärtigen Stand der Atomgewichtsfrage.

Ztschr. angew. Chem., 1901, **14**, 841–843; Chem. Centrbl., 1901, **72**, **II**, 721.

1901 : 919. Smith. Vanadium, its extraction and uses.

J. Soc. Chem. Ind., 1901, **20**, 1183–1188, 1217; Chem. Centrbl., 1902, **73**, **I**, 346–347.

1901 : 920. Note. Zur Berechnung der Atomgewichte.

Ztschr. angew. Chem., 1901, **14**, 182–184.

1901 : 921. Brauner. On the place of hydrogen in the periodic system.

Chem. News, 1901, **84**, 233–234; Chem. Centrbl., 1902, **73**, **I**, 12–13.

1901 : 922. Steele. The place of the rare earth metals among the elements.

Chem. News, 1901, **84**, 245–247; J. Chem. Soc. Lond., 1902, **82**, **2**, 79; Chem. Centrbl., 1902, **73**, **I**, 15–16.

1901 : 923. Norton. The Action of Sodium Thiosulphate on Solutions of Metallic Salts at High Temperatures and Pressures.

Am. J. Sci., 1901, [**4**,] **12**, 115–122; Chem. News, 1901, **84**, 254–255, 261–262; J. Soc. Chem. Ind., 1902, **21**, 51.

1901 : 924. Derby. The mode of occurrence of Topaz near Ouro Preto, Brazil.

Am. J. Sci., 1901, [**4**], **11**, 25–34; J. Chem. Soc. Lond., 1901, **80**, **2**, 169; J. Am. Chem. Soc., 1901, **23**, in Review of Am. Chem. Research, 1901, **7**, 74–75.

1901 : 925. Hoffman. On some new mineral occurrences in Canada.

Am. J. Sci., 1901, [**4**], **11**, 149–153; Chem. Centrbl., 1901, **72**, **I**, 759–760.

1901 : 926. Kraus and Reitinger. Hussakit, ein neues mineral und dessen beziehung zum Xenotim.

Ztschr. Kryst., 1901, **34**, 268–277; J. Am. Chem. Soc., 1902, **24**, in Review of Am. Chem. Research, 1902, **8**, 450–451; Bull. soc. franç. min., 1901, **24**, 436; S. of M. Quar., 1902, **23**, 299; Am. Geologist, 1902, **30**, 46–55.

1901 : 927. Pegram. Radio-active minerals.

Science, 1901, **13**, 274; Berg. u. H. Ztg., 1901, **60**, n. s. **55**, 220; Progressive Age, 1901, **19**, 405–407, 421; Beibl. Ann. der Phys., 1901, **25**, 397; 1901, **25**, 47 Lit. Uebers.

1901 : 928. Hempel. Ueber Messung hoher Temperaturen mittels des Spectralapparates.

Sächsisch-Thüringischen Bezirksverein des Vereins Deutscher Chemiker; Ztschr. angew. Chem., 1901, **14**, 237–242.

1901 : 929. Herzfeld and Korn. Chemie der seltenen Erden. Berlin, 1901. (A review by Drossbach.)

Ztschr. angew. Chem., 1901, **14**, 811.

1901 : 930. Rutherford. Emanations from radio-active substances.

Nature, 1901, **64**, 157–158; Berg. u. H. Ztg., 1901, **60**, n. s. **55**, 390; Revue Sci., 1901, [**4**], **16**, 88; Beibl. Ann. der Phys., 1901, **25**, 729; Science Abstracts, 1901, **4**, 934.

1901 : 931. Guillaume. Les lois du rayonnement et la théorie des manchons a incandescence. Première partie: Les principes. Deuxième partie: Les applications.

Revue Gen. Sci., 1901, **12**, 358–368, 422–434; Jour. l'Éclairage au Gaz, 1901, 247–250, 270; Nature, 1901, **64**, 309; J. Gasbel., 1901, **44**, 726; Progressive Age, 1901, **19**, 371; Beibl. Ann. der Phys., 1901, **25**, 595; 1901, **25**, 87, 103 Lit. Uebers.

1901 : 932. Pegram. Radio-active substances and their radiations.

Science, 1901, **14**, 53–59; Beibl. Ann. der Phys., 1901, **25**, 1027; 1901, **25**, 136 Lit. Uebers; Progressive Age, 1901, **19**, 405–407, 421; Electrical World and Engineer, N. Y., 1901, **38**, 126–127, 146; Science Abstracts, 1901, **4**, 935.

1901 : 933. Baur. Die Bedeutung der Becquerelstrahlen in der Chemie.

Naturw. Rundschau, 1901, **16**, 338–340, 355–356; Beibl. Ann. der Phys., 1901, **25**, 1027–1028; 1901, **25**, 117–132 Lit. Uebers.

1901 : 934. Meyer and Jacoby. Die Doppelnitrate des vierwertigen Ceriums und des Thoriums.

Ztschr. anorgan. Chem., 1901, **27**, 359–389; J. Chem. Soc. Lond., 1901, **80**, **2**, 510–511; Chem. Centrbl., 1901, **72**, **I**, 167–168.

1901 : 935. Wyrouboff. Sur la forme cristalline de quelques sels des terres rares.

Bull. soc. franç. min., 1901, **24**, 105–116; Beibl. Ann. der Phys., 1901, **25**, 87 Lit. Uebers.

1901 : 936. Sterba. Préparation de l'oxyde de Cérium pur.

C. R., 1901, **133**, 221–223; J. Soc. Chem. Ind., 1901, 927; J. Chem. Soc. Lond., 1901, **80**, **2**, 602; Ztschr. Elektrochem., 1901, **7**, 963-964; Nature, 1901, **64**, 344; Chem. News, 1901, **84**, 84; Monit. Sci. Quesneville, 1901, [**4**], **15**, **2**, 618; Bull. soc. chim. Paris, 1901, [**3**], **26**, 969–970; Cosmos, 1901, [**4**], **45**, 155; J. Gasbel., 1901, **44**, 708; Revue Sci., 1901, [**4**], **16**, 150; Revue Gen. Sci, 1901, **12**, 773; Chem. Centrbl., 1901, **72**, **II**, 573–574.

1901 : 937. Formenti and Levi. "Einwirkung von Al auf die Salzlösungen und auf einige geschmolzene Salze."

Bollettino Chimico Farmaceutico, 1901, **40**, 689–696; J. Chem. Soc. Lond., 1902, **82**, **2**, 141; J. Soc. Chem. Ind., 1902, **21**, 116; Chem. Centrbl., 1901, **72**, **II**, 1298.

1901 : 938. R. F. Rammelsberg, by G. Wyrouboff.

Bull. soc. franç. min., 1901, **24**, 280–306.

1901 : 939. Sartori. Tabellen zur Berechnung quantitativer chemischer Analysen unter Zugrundelegung der von Landolt, Ostwald und Seubert für die Praxis empfohlenen Atomgewichtszahlen.

Ztschr. anal. Chem., 1901, **40**, 200–376, Suppl. 5 pp.; J. Chem. Soc. Lond., 1901, **80**, **2**, 574; Bull. soc. chim. Paris, 1901, [**3**], **26**, 1066; Ztschr. Elektrochem., 1901, **7**, 859.

1901 : 940. Giesel. Ueber radio-active Stoffe.

Ber., 1901, **34**, 3772–3776; J. Chem. Soc. Lond., 1902, **82**, **2**, 78; J. Soc. Chem. Ind., 1902, **21**, 76–77; Bull. soc. chim. Paris, 1902, [**3**], **28**, 257; Ztschr. physikal. Chem., 1902, **41**, 636–637; Ztschr. angew. Chem., 1902, **15**, 88–89; Science, 1901, **14**, 1018; Chem. Centrbl., 1902, **73**, **I**, 8–9.

1901 : 941. Koppel. Die Chemie des Thoriums.

Sammlung Chemischer und chemisch-technischer Vorträge, 1901, VI Bd., 303–414; J. Gasbel., 1901, **44**, 868; Die Chemische Industrie, 1901, **24**, 604; Beibl. Ann. der Phys., 1901, **25**, 165 Lit. Uebers.

1901 : 942. Jefferson (Miss). Aromatic bases as precipitants for rare earths metals. Thesis for Ph. D., 1901, University of Pennsylvania.

J. Am. Chem. Soc., 1902, **24**, 540–562; J. Chem. Soc. Lond., 1902, **82**, **2**, 534; J. Soc. Chem. Ind., 1902, **21**, 929; S. of M. Quar., 1902, **24**, 94; Chem. Ztg. Rep., 1902, **26**, 196; Analyst, 1902, **27**, 288.

1901 : 943. Bluman. Monazite from New Granada.

Chem. News, 1901, **84**, 175; J. Chem. Soc. Lond., 1902, **82**, **2**, 28; Bull. soc. chim. Paris, 1902, [**3**], **28**, 27.

1901 : 944. Brauner. On the existence of a new element associated with Thorium.

Chem. News, 1901, **84**, 219.

1901 : 945. Wells and Willis. On the double chlorides of Cæsium and Thorium.

Am. J. Sci., 1901, [**4**], **12**, 191–192; J. Am. Chem. Soc., 1901, **23**, in Review of Am. Chem. Research, 1901, **7**, 200; Nature, 1901, **64**, 548; Chem. Centrbl., 1901, **72**, **II**, 844.

1901 : 946. Becquerel. The Radio-activity of Matter.

Nature, 1900–1901, **63**, 396–398; Science Abstracts, 1901, **4**, 492.

1901 : 947. Baur. Die Bedeutung der Becquerelstrahlen in der Chemie.

Naturw. Rundschau, 1901, **16**, 338–340, 355–356; Beibl. Ann. der Phys., 1901, **25**, 1027–1028; 1901, **25**, 117, 132 Lit. Uebers.

1901 : 948. ———. Les expériences de Niepcè de Saint-Victor et les rayons de Becquerel.

Revue Gen. Sci., 1901, **12**, 154–155.

1901 : 949. Czapski. Atomgewichte der Elemente.

Ztschr. anal. Chem., 1901, **14**, 692–696.

1901 : 950. Fournier. Les nouvelles substances radioactives.

Cosmos, 1901, [**4**], **44**, 742–745.

1901 : 951. Rutherford. Einfluss der Temperatur auf die "Emanationen" radioaktiver Substanzen.

Phys. Ztschr., 1900–1901, **2**, 429–431; Naturw. Rundschau., 1901, **16**, 343–344; Ztschr. physikal. chem. unterricht, 1901, **14**, 357–358; Beibl. Ann. der Phys., 1901, **25**, 343–344, 557–558; Science Abstracts, 1901, **4**, 933–934.

1901 : 952. Elster and Geitel. Weitere Versuche über die Elektrizitätszerstreuung in abgeschlossenen Luftmengen.

Phys. Ztschr., 1900–1901, **2**, 560–563; Naturw. Rundschau., 1901, **16**, 487–488.

1901 : 953. Norton. Die Einwirkung von Natriumthiosulfat auf Metallsalzlösungen bei hohen Temperaturen und Drucken.

Ztschr. anorgan. Chem., 1901, **28**, 223–232.

1901 : 954. Martin. Radio-activity and atomic weight.

Chem. News., 1901, **83**, 130.

1901 : 955. Rogers. A list of minerals arranged according to the thirty-two crystal classes.

S. of M. Quar., 1901, **23**, 79–97; Min. Mitthl., 1902, **21**, 90 Lit.

1901 : 956. NOTE. Some chemical mysteries.

Scientific American, 1901, **85**, 146; J. Frankl. Inst., 1901, **152**, 419–420.

1901 : 957. SUESS. Die Herkunft der Moldavite und Verwandter Gläser.

Sep. Abdr. Jahrb. K. K. Geol. Reichanstalt, Wien, 1901, **50**, 193–382; Min. Mitthl., 1901, **20**, 184; Chem. Centrbl., 1901, **71**, **I**, 591–592.

1901 : 958. WHITE and RUSSELL. Relation of Heating to Lighting Power of Gas with Special Reference to Incandescent Mantles.

Am. Gas Light J. 1901, **74**, 488–491; J. Gas. L., 1901, **77**, 878–881; J. Soc. Chem. Ind., 1902, **21**, 1020; Progressive Age, 1901, **19**, 85, 118–122.

1901 : 959. ———. Notice of demise of Mr. Waldron Shapleigh.

J. Soc. Chem. Ind., 1901, **20**, 1082–1083.

1901 : 960. AUER, FREIHERR VON WELSBACH. Zur Geschichte der Erfindung des Gasglühlichtes.

Verhandl. XLI Jahresversammlung des Deutschen Vereins von Gas- und Wasserfächmännern zu Wien, 1901; J. Gasbel., 1901, **44**, 661–664; J. Soc. Chem. Ind., 1901, **20**, 1097–1098; Chem. Ztg. Rep., 1902, **26**, 9; Chem. News, 1902, **85**, 254–256; Gas World, 1901, Oct. 12; Progressive Age, 1901, **19**, 401, 487, 491; Chem. Centrbl., 1902, **73**, **II**, 166.

1901 : 961. ———. Bericht der Lichtmess-Kommission. Prüfung von Glühkörpern.

Verhandl. XLI Jahresversammlung des Deutschen Vereins von Gas- und Wasserfächmännern zu Wien, 1901; J. Gasbel., 1901, **44**, 697–699; J. Soc. Chem. Ind., 1901, **20**, 1098; Chem. Ztg. Rep., 1902, **26**, 26; Progressive Age, 1901, **19**, 421.

1901 : 962. ———. Monazite sands at Espirito Santo (Brazil).

Great Britain. Foreign Office Annual Series, 1901, No. 2724; J. Soc. Chem. Ind., 1901, **20**, 1162.

1901 : 963. ELSTER and GEITEL. Über eine fernere Analogie in dem elektrischen Verhalten der natürlichen und der durch Becquerelstrahlen abnorm leitend gemachten Luft.

Phys. Ztschr., 1900–1901, **2**, 590–593; Naturw. Rundschau, 1901, **16**, 568. Science Abstracts 1901, **4**, 1026.

1901 : 964. GEITEL. Über die durch atmosphärische Luft induzierte Radioaktivität.

Phys. Ztschr., 1901–1902, **3**, 76–79.

1901 : 965. FEHRLE. Über die Radioaktivität des Thoriumoxyds.

Phys. Ztschr., 1901–1902, **3**, 130–132.

1901 : 966. RUTHERFORD. Transmission of Excited Radioactivity.

Bulletin of the American Physical Soc. 1901, **2**, 37–43; Phys. Ztschr., 1901–1902, **3**, 210–214.

1901 : 967. Rutherford and Allen. Excited Radioactivity and Ionization of Atmospheric Air.

Bulletin of the American Physical Soc., 1902, **2**, 59–66; Phys. Ztschr., 1901–1902, **3**, 225–230.

1901 : 968. Traube. Jahresberichte der angewandten Chemie und verwandter Gebiete. Jahresbericht über die Fortschritte der physikalischen Chemie und Physik im Jahre 1901.

Chem. Ztg., 1902, **26**, 747–752.

1901 : 969. N. Tarugi e Q. Checchi. Di alcune incertezze nell' applicazione della legge periodica di Mendelejeff.

Gazzetta chim. italiana, 1901, **31**, **II**, 417-445; Chem. Centrbl., 1902, **73**, **I**, 168.

1901 : 970. Note. The radio-activity of matter.

J. Gas L., 1901, **77**, 604.

1901 : 971. Chandler. Notes on Electro-Chemistry.

The Mineral Industry, New York, 1901, **9**, 763–772.

1901 : 972. Meyer. Magnetisierungszahlen seltener Erden.

Sitzungsber. Akad. d. Wien, math.-naturw. Cl., 1901, **110** Abth. **II***a*, 541–559; Phys. Ztschr., 1901–1902, **3**, 87–88; Beibl. Ann. der Phys., 1901, **25**, 180 Lit. Uebers.

1901 : 973. Exner and Haschek. Über die ultravioletten Funkenspectra der Elemente. XX Mittheilung.

Sitzungsber. Akad. d. Wien, math.-naturw. Cl., 1901, **110** Abth. **II***a*, 964–987.

1901 : 974. Wyrouboff. Sur les colloïdes.

Bull. soc. chim. Paris, 1901, [**3**], **25**, 994–995, 1016–1022; Chem. News, 1902, **85**, 275.

1901 : 975. Behrens. Ein Beitrag zur kenntnis der Metalle der Ceriumgruppe.

Archives néerlandaises des sciences exactes et naturelles, 1901, [**2**], **6**, 67–91; J. Soc. Chem. Ind., 1902, **21**, 368; J. Chem. Soc. Lond., 1902, **82**, **2**, 79–81; Chem. Centrbl., 1902, **73**, **I**, 296–297.

1901 : 976. Brauner. Seltenen Erdmetalle.

XI Congress der russischen Naturforscher und Aertze zu St. Petersbourg, II^{a}, Dec. 21, 1901 (Jan. 3, 1902); Chem. Ztg., 1902, **26**, 68.

1901 : 977. Ramsay. The Inert Constituents of the Atmosphere.

Brit. Assoc. Adv. Sci., 1901, lxxv; Nature, 1901, **65**, 161–164.

1901 : 978. Baskerville. Notes on examination of new elements associated with Thorium.

Jour. Elisha Mitchell Sci. Soc., 1901, ——; Science, 1901, **14**, 615.

1901 : 979. ——. Geschichtliches über des Auerlicht.

Techn. Bl. Berlin N^{r}. 38; Berg. u. H. Ztg., 1901, 55, n. s. **50**, 619.

1901: 980. MALLET. Stas Memorial Lecture, pp. 1–56.
Memorial Lectures delivered before the Chemical Society of London. T. E. Thorpe, London, 1901.

1901: 981. BRUNDAGE. German demand for Monazite Sand.
U. S. Consular Reports, 1901, **66**, No. **251**, 581–582; Progressive Age, 1901, **19**, 341.

1901: 982. HERZFELD and KORN. Chemie der seltenen Erden. IX u. 207 S. Berlin, 1901. (A review.)
Beibl. Ann, der Phys., 1901, **25**, 237–238.

1901: 983. ———. Le Prix La Caze à M. M. Wyrouboff et Verneuil.
C. R., 1901, **133**, 1074–1077; Chem. Ztg., 1901, **26**, 13.

1901: 984. ECKSTÄDT. Die Reaktion zwischen Saltpetersäure und Jodwasserstoff. Mit 6 Figuren im Text.
Ztschr. anorgan. Chem., 1901–1902, **29**, 51–94.

1901: 985. CASTELLANI. Das Gasglühlicht. Die Fabrikation der Glühnetze (Strümpfe). Wien, 120 pp. (A review.)
J. Gasbel., 1901, **44**, 198; Beibl. Ann. der Phys., 1901, **25**, 238; 1901, **25**, 36 Lit. Uebers.

1901: 986. BOEHM. Die Zerlegbarkeit der Praseodyms und Darstellung seltener Erden mit Hilfe einer neuen Trennungsmethode. 2 Spectral tafeln und 7 Tabellen. Halle.
J. Gasbel., 1901, **44**, 198.

1901: 987. BUNTE. Zur Theorie des Gasglühlichtes.
J. Gasbel., 1901, **44**, 411–412; J. Soc. Chem. Ind., 1901, **20**, 791; Progressive Age, 1901, **19**, 275.

1901: 988. AUER VON WELSBACH. Über die Geschichte der Erfindung des Gasglühlichts.
Verhandl. der XLI Jahresversammlung der Deutschen Vereins für Gas-und Wasserfächmännern zu Wien, 1901; J. Gasbel., 1901, **44**, 485–486; Progressive Age, 1901, **19**, 317, 353.

1901: 989. REDNER. Bemerkungen zur Theorie des Gasglühlichts.
Verhandl. der XLI Jahresversammlung der Deutschen Vereins für Gas-und Wasserfächmännern zu Wien, 1901; J. Gasbel., 1901, **44**, 486.

1901: 990. NOTE. Zur Kenntnis der Osmiumlampe.
J. Gasbel., 1901, **44**, 688–689.

1901: 991. DROSSBACH. Zur Theorie des Gasglühlichtes.
J. Gasbel., 1901, **44**, 819-820; Chem. Ztg. Rep., 1902, **26**, 18; Ztschr. angew. Chem., 1902, **15**, 159; Progressive Age, 1901, **19**, 505; Wagner's Jsb., 1901, **47**, 106.

1901: 992. CARO. Über Acetylenglühlicht und Karburierung des Acetylens.
J. Gasbel., 1901, **44**, 632, 824–827, 847–849.

1901 : 993. Gentsch. Glühkörper für Gasglühlicht, Geschichte und Wesen (book).
J. Gasbel., 1901, **44**, 946.

1901 : 994. ———. Monazite.
The Mineral Industry, New York, 1901, **10**, 462.

1901 : 995. Henning. Über radioaktive Substanzen.
Inaugural Dissertation, Vereinigten Friedrichs-Universität Halle-Wittenberg, 1901, pp. 1–41, + 3 tafeln.

1901 : 996. Koppel. Die Chemie des Thoriums. (A review by Witt.)
Sammlung Chemischer und chemisch-technischer Vorträge, 1901, VI Bd., 303–314 ; Die Chemische Industrie, 1901, **24**, 604.

1901 : 997. Samter. ———
Inaugural Dissertation, Berlin, 1901.

1901 : 998. Schilling. Beiträge zur Chemie des Thoriums.
Inaugural Dissertation, Ruprecht-Karls-Universität, Heidelberg, 1901, pp. 150.

1901 : 999. Lenher. The Rare Elements.
The Mineral Industry, New York, 1901, **10**, 562–575.

1901 : 1000. Harris. The Mathematical Expression of the Periodic Law.
J. Phys. Chem., 1901, **5**, 577–586; Chem. Centrbl., 1902, **73**, **I**, 164.

1901 : 1001. Wells. Double halides. Generalizations on Double Halogen Salts.
Am. Chem. J., 1901, **26**, 389–408: Ztschr. physikal. Chem., 1902, **41**, 372–373.

1901 : 1002. Bagard. Les rayons de Becquerel et de Curie.
Bull. Soc. Ind. Mulhouse, 1901, **71**, 109–120.

1901 : 1003. Delaunay. Poids atomiques des corps simples.
La Nature, 1901, **56**, 102.

1901 : 1004. Drossbach. Verfahren zur Herstellung von Glühkörpern durch Verwendung höher oxydierter Thoriumssalze.
Ztschr. Beleucht., 1901, **7**, 130; Progressive Age, 1901, **19**, 207.

1901 : 1005. Knöffler. Verfahren zur Herstellung von Glühkörpern.
Ztschr. Beleucht., 1901, **7**, 159; Progressive Age, 1901, **19**, 227.

1901 : 1006. Note. Incandescent mantles.
Progressive Age, 1901, **19**, 155–156.

1901 : 1007. Mason. Improvement in Welsbach Lights.
U. S. Consular Reports, 1901, **66**, No. **249**, 262–265; J. Am. Chem. Soc., 1901, **23**, in Review of Am. Chem. Research, 1901, **7**, 181–182.

1901: 1008. RICHARDS. A Table of Atomic Weights of Seventy-seven Elements, compiled in April, 1901, from the most Recent Data.

Proc. Am. Acad. Arts and Sci., 1900–1901, **36**, 544–545; J. Am. Chem. Soc., 1901, **23**, in Review of Am. Chem. Research, 1901, **7**, 143; Ztschr. physikal. Chem., 1902, **40**, 109.

1901: 1009. NOTE. Discovery of rare earths.

Progressive Age, 1901, **19**, 443.

1901: 1010. WEISS. Lecture on use of gas in Welsbach's and comparisons.

Progressive Age, 1901, **19**, 443.

1901: 1011. BAILEY. Development of the Incandescent Gas Lighting Industry.

Progressive Age, 1901, **19**, 523, 524–525; 1902, **20**, 3.

1901: 1012. ———. Report of the International Committee on Atomic Weights.

J. Chem. Soc. Lond., 1902, **82**, **1**, i–iv.

1901: 1013. RASCH. Ein neues Verfahren zur Erzeugung von elektrischem Licht.

Elektrotechn. Ztschr., 1901, **22**, 155–157; Science Abstracts, 1901, **4**, 566–567.

1901: 1014. WYROUBOFF. Recherches sur les solutions.

Bull. soc. franç. min., 1901, **24**, 36–71; Beibl. Ann. der Phys., 1901, **25**, 493; 1901, **25**, 87 Lit Uebers.

1901: 1015. KOPPEL. Die Chemie des Thoriums. Berlin.

112 Seiten (Seite 303–414 des 6. Bandes der Sammlung Chemischer und chemisch-technischer Vorträge). Stuttgart, 1901. (A review.)

1901: 1016. RUTHERFORD and ALLEN. Excited Radioactivity and Ionization of the Atmosphere.

Communicated to the American Physical Soc. Dec. 27, 1901.

1902: 1017. MOISSAN. Die Metallcarbide.

Ztschr. Elektrochem., 1902, **8**, 44–48; Am. J. Sci., 1902, [**4**], **13**, 238–240.

1902: 1018. CURIE and CURIE. Sur les corps radioactifs.

C. R., 1902, **134**, 85–87; J. Chem. Soc. Lond., 1902, **82**, **2**, 190; Chem. News, 1902, **85**, 71; Chem. Ztg. Rep., 1902, **26**, 93; Am. J. Sci., 1902, [**4**], **13**, 241; Chem. Centrbl., 1902, **73**, **I**, 514–515.

1902: 1019. HILLEBRAND. The Composition of Yttrialite, with a criticism of the formula assigned to Thalénite.

Am. J. Sci., 1902, [**4**], **13**, 145–152; J. Chem. Soc. Lond., 1902, **82**, **2**, 270; J. Am. Chem. Soc., 1902, **24**, in Review of Am. Chem. Research, 1902, **8**, 152; Chem. News, 1902, **86**, 68–70; Bull. soc. franç. min., 1902, **25**, 31-32; Min. Mitthl., 1902, **21**, 183 Lit.; Chem. Centrbl., 1902, **73**, **I**, 827.

1902: 1020. NOTE. How the Welsbach Light was discovered.

Scientific American, 1902, **86**, 93.

1902: 1021. RUTHERFORD and SODDY. The Radio-activity of Thorium Compounds. I. An Investigation of the Radio-active Emanation.

Chem. Soc. Lond. Proc., 1902, **18**, 2–5; J. Soc. Chem. Ind., 1902, **21**, 196–197; Chem. News, 1902, **85**, 24, 55–56; Chem. Ztg., 1902, **26**, 115–116; Chem. Centrbl., 1902, **73**, **I**, 511–513.

1902: 1022. ENGLER and WÖHLER. Pseudokatalytische Sauerstoffübertragung.

Ztschr. anorgan. Chem., 1902, **29**, 1–21; J. Soc. Chem. Ind., 1902, **21**, 257–258; Chem. Centrbl., 1902, **72**, **I**, 239–241.

1902: 1023. HOFMAN and ZERBAN. Ueber radioactives Thor.

Ber., 1902, **35**, 531–533; J. Chem. Soc. Lond., 1902, **82**, **2**, 211; J. Soc. Chem. Ind., 1902, **21**, 368; Bull. soc. chim. Paris, 1902 [**3**], **28**, 867–868; Chem. Ztg. Rep., 1902, **26**, 57; Ztschr. angew. Chem., 1902, **15**, 285; Chem. News, 1902, **85**, 100–101; Chem. Centrbl., 1902, **73**, **I**, 624.

1902: 1024. METZGER. Preliminary note on a new separation of Thorium.

J. Am. Chem. Soc., 1902, **24**, 275–276; Proc. Am. Chem. Soc., 1902, **24**, 14; J. Soc. Chem. Ind., 1902, **21**, 561, 563; J. Chem. Soc. Lond., 1902, **82**, **2**, 431; S. of M. Quar., 1902, **24**, 94–95; Analyst, 1902 **27**, 232; Chem. Centrbl., 1902, **73**, **I**, 1046.

1902: 1025. METZGER. A new separation of Thorium from Cerium, Lanthanum, and Didymium, and its application to the analysis of Monazite.

Contributions from the Havemeyer Laboratories; Columbia University, 1902, No. 64; J. Am. Chem. Soc., 1902, **24**, 901–917; S. of M. Quar., 1902, **23**, 212; Columbia University Quarterly, 1902, **4**, 424; Chem. News, 1902, **86**, 218–219, 229–230, 242–244; Chem. Ztg. Rep., 1902, **26**, 309–310; Chem. Centrbl., 1902, **73**, **II**, 1392–1393.

1902: 1026. DENNIS and DALES. Contributions to the Chemistry of the Rare Earths of the Yttrium Group.

J. Am. Chem. Soc., 1902, **24**, 401–435; Proc. Am. Chem. Soc., 1902, **24**, 14; J. Chem. Soc. Lond., 1902, **82**, **2**, 456; Chem, News, 1902, **85**, 256–258, 265–266, 285–286, 291–293, 302–304; Chem. Ztg., 1902, **26**, 127; Chem. Centrbl., 1902, **73**, **I**, 1395–6; 1902, **73**, **II**, 336.

1902: 1027. BENZ. Ueber die Thoriumbestimmung im Monazitsande.

Ztschr. angew. Chem., 1902, **15**, 297–309; J. Chem. Soc. Lond., 1902, **82**, **2**, 431; J. Soc. Chem. Ind., 1902, **21**, 561, 563; S. of M. Quar., 1902, **24**, 95; Analyst, 1902, **27**, 207; Chem. Centrbl., 1902, **73**, **I**, 1132–1133.

1902: 1028. Böhm. Cerium oxalicum medicinale als ausgangsmaterial für die darstellung der Ceritelemente.

Ztschr. angew. Chem., 1902, **15**, 372–380; J. Chem. Soc. Lond., 1902, **82**, **2**, 455–456; J. Soc. Chem. Ind., 1902, **21**, 719–720; Chem. Centrbl., 1902, **73**, **I**, 1194–1195.

1902: 1029. Rutherford and Soddy. The radio-activity of thorium compounds. Part II. The cause and nature of radio-activity.

Chem. Soc. Lond. Proc., 1902, **18**, 120–121; Chem. News, 1902, **85**, 261–262; J. Soc. Chem. Ind., 1902, **21**, 795; Chem. Ztg., 1902, **26**, 504; Chem. Centrbl., 1902, **73**, **II**, 6–7.

1902: 1030. Soddy. The radio-activity of uranium.

Chem. Soc. Lond. Proc., 1902, **18**, 121–2; Chem. News, 1902, **85**, 262; J. Soc. Chem. Ind., 1902, **21**, 796; Chem. Ztg., 1902, **26**, 504; Chem. Centrbl., 1902, **73**, **II**, 7–8.

1902: 1031. Guenther. German interests in Monazite in Brazil.

U. S. Consular Reports, 1902, **69**, No. **261**, 364; J. Soc. Chem. Ind., 1902, **21**, 799.

1902: 1032. Clarke. Ninth Annual Report of the Committee on Atomic Weights. Determinations published in 1902.

J. Am. Chem. Soc., 1902, **24**, 201–215; J. Chem. Soc. Lond., 1902, **82**, **2**, 389; Chem. News, 1902, **86**, 25–26, 37–40; Ztschr. physikal. Chem., 1902, **41**, 379–380; Chem Centrbl., 1902, **73**, **I**, 1038.

1902: 1033. White, Russell, and Traver. The Theory of the Incandescent Mantle.

Am. Gas Light J., 1902, **76**, 413–416; J. Gas L., 1902, **79**, 892–894.

1902: 1034. ———. Production of Asbestos, etc., in 1901.

Eng. and Min. J., 1902, **73**, 760; J. Soc. Chem. Ind., 1902, **21**, 936.

1902: 1035. White and Traver. Theory of the Incandescent Mantle.

J. Soc. Chem. Ind., 1902, **21**, 1012–1017; J. Am. Chem. Soc., 1902, **24**, in Review of Am. Chem. Research, 1902, **8**, 504–505; Chem. Centrbl., 1902, **73**, **II**, 972.

1902: 1036. Rutherford. Versuche über erregte Radioaktivität.

Phys. Ztschr., 1901–1902, **3**, 254–257.

1902: 1037. Elster and Geitel. Beschreibung des Verfahrens zur Gewinnung vorübergehend radioaktiver Stoffe aus der atmosphärischen Luft.

Phys. Ztschr., 1901–1902, **3**, 305–310.

1902: 1038. Giesel. Über Becquerelstrahlen und die radioaktiven Substanzen.

Ztschr. Elektrochem., 1902, **8**, 579–585; J. Soc. Chem. Ind., 1902, **21**, 1157; Chem. Centrbl., 1902, **73**, **II**, 725–726.

1902: 1039. Biltz. Zur kenntniss des Perioden-systems der Elemente.

Ber., 1902, **35**, 562–568; J. Chem. Soc. Lond., 1902, **82**, **2**, 201; Chem. Ztg. Rep., 1902, **26**, 65; Bull. soc. chim, Paris, 1902, [**3**], **28**, 867; Chem. Centrbl., 1902, **73**, **I**, 618–619, 1038.

1902: 1040. Biltz. Berichtigung zu der Tabelle über das Periodensystem der Elemente.

Ber., 1902, **35**, 4241.

1902: 1041. Curie. Sur le poids atomique du radium.

C. R., 1902, **135**, 161–163; Bull. soc. chim. Paris, 1902, [**3**], **27**, 1181; Chem. Ztg., 1902, **26**, 744.

1902: 1042. Rapport de M. Béhal. Sur les travaux de M. Debierne proposé par la Commission des prix pour recevoir le prix Le Blanc et adopté par le Conseil.

Bull. soc. chim. Paris, 1902, [**3**], **27**, 35–36; Chem. Ztg., 1902, **26**, 136.

1902: 1043. Richards. A Table of Atomic Weights of Seventy-seven Elements. Compiled in April, 1902, from the most Recent Data.

Proc. Amer. Acad. Arts and Sci., 1901–1902, **37**, 630–631; J. Am. Chem. Soc., 1902, **24**, in Review of Am. Chem. Research, 1902, **8**, 437.

1902: 1044. Crookes. Radioactivity and the Electron Theory.

Roy. Soc. Lond. Proc., 1902, **69**, 413–422; J. Chem. Soc. Lond., 1902, **82**, **2**, 374; Chem. News, 1902, **85**, 109–112; Chem. Centrbl., 1902, **73**, **I**, 842–843.

1902: 1045. Armstrong. The Classification of the Elements.

Roy. Soc. Lond. Proc., 1902, **70**, 86–94; J. Chem. Soc. Lond., 1902, **82**, **2**, 553; Chem. News, 1902, **86**, 86–88, 103–106; Chem. Ztg., 1902, **26**, 338–339.

1902: 1046. Pissarjewsky. Wirkung von Wasserstoffsuperoxyd und Natriumhypochlorit auf die Oxyde von Thorium, Zirkonium und Cerium.

Ztschr. anorgan. Chem., 1902, **31**, 359–367; J. Chem. Soc. Lond., 1902, **82**, **2**, 565–566; Chem. Ztg. Rep., 1902, **26**, 197.

1902: 1047. Stevens. Über Metathoriumoxychlorid.

Ztschr. anorgan. Chem, 1902, **31**, 368–372; J. Chem. Soc. Lond., 1902, **82**, **2**, 566; Chem. Ztg. Rep., 1902, **26**, 197; Chem. Centrbl., 1902, **73**, **II**, 336.

1902: 1048. Kolb. Eine neue Fallungs-und Trennungsmethode für Thorerde.

J. prakt. Chem., 1902, **66**, 59–64; J. Chem. Soc. Lond., 1902, **82**, **2**, 584; Chem. Ztg. Rep., 1902, **26**, 214; S. of M. Quar., 1902, **24**, 94; Analyst, 1902, **27**, 337; Chem. Centrbl., 1902, **73**, **II**, 610–611.

1902: 1049. Schilling. Das Vorkommen der Thorerde im Mineralreiche.

Ztschr. angew. Chem., 1902, **15**, 869–882; J. Soc. Chem. Ind., 1902, **21**, 1243–1244; Chem. Centrbl., 1902, **73**, **II**, 883.

1902: 1050. Gutbier. (Review by Brauner.) Studien über das Tellur.

Ztschr. anorgan. Chem., 1902, **31**, 374–381.

1902: 1051. Drossbach. Über Cerium oxalicum medicinale.

Ztschr. angew. Chem., 1902, **15**, 487–488; Chem. Centrbl. 1902, **73**, **II**, 147.

1902: 1052. Brauner. Über die Stellung der Elemente der seltenen erden im periodischen System von Mendelejeff.

Ztschr. anorgan. Chem., 1902, **32**, 1–30; Chem. Centrbl., 1902, **73**, **II**, 871–872.

1902: 1053. Erdmann. Der neunte Jahresbericht der Amerikanischen Commission für Atomgewichte. II Mittheilung aus dem anorganish-chemischen Laboratorium der Kgl. Techn. Hochschule, Berlin.

Ztschr. angew. Chem., 1902, **15**, 669–670; Chem. Centrbl., 1902, **73**, **II**, 317.

1902: 1054. Böhm. Cerium oxalicum medicinale.

Ztschr. angew. Chem., 1902, **15**, 678.

1902: 1055. Henning. Über radioactive Substanzen. 1901. (Auszug aus einer Hallenser Dissertation. Mitgeteilt aus dem Physikalischen Institut in Halle a. S.)

Ann. der Phys. Wied., 1902, **7**, 562–575; J. Chem. Soc. Lond., 1902, **82**, **2**, 297.

1902: 1056. Pissarjewsky. (Action of Hydrogen Peroxide and Sodium Hypochlorite on oxides of Thorium, Zirconium, and Cerium.)

J. Russ. Phys. Chem. Ges. St. Petersburg, April 25–8 Mai, 1902; Ztschr. angew. Chem., 1902, **15**, 548; Chem. Ztg., 1902, **26**, 530.

1902: 1057. Noelting. Sur quelques indogénides contenant des groupes auxochromiques. Réunion annuelle de la Société Chimique, 1902. Séance du Vendredi, 16 Mai, 1902.

Bull. soc. chim. Paris, 1902, [**3**], **27**, 833-837.

1902: 1058. Siemens and Halske. Darstellung von Thoriummetall.

Deutsche Reichs. Patent, 133,959, July 31, 1900, Berlin; Chem. Ztg., 1902, **26**, 878.

1902: 1059. Marc. Terbium.

Ber., 1902, **35**, 389; Chem. News, 1902, **86**, 73–75.

1902: 1060. THOMSON. Experiments on Induced-Radioactivity in Air, and on the Electrical Conductivity produced in Gases when they pass through Water.

Phil. Mag., 1902, [**6**], **4**, 352–367.

1902: 1061. RUTHERFORD. The Cause and Nature of Radioactivity. Part I.

Phil. Mag., 1902, [**6**], **4**, 370–396; Chem. Centrbl., 1902, **73**, **II**, 874–875.

1902: 1062. DROSSBACH. Ueber ultraviolette Absorptionsspectren.

Ber., 1902, **35**, 1486–1489; Chem. Ztg. Rep., 1902, **26**, 138; Chem. Centrbl., 1902, **73**, **I**, 1311.

1902: 1063. RUTHERFORD and Miss H. T. BROOKS. Comparison of the Radiations from Radioactive Substances.

Phil. Mag., 1902, [**6**], **4**, 1–23; J. Chem. Soc. Lond., 1902, **82**, **2**, 590–591; Chem. Centrbl., 1902, **73**, **II**, 417–418.

1902: 1064. VINCENT. On a General Numerical Connexion between the Atomic Weights. [Plates I and II.]

Phil. Mag., 1902, [**6**], **4**, 103–115; J. Chem. Soc. Lond., 1902, **82**, **2**, 602.

1902: 1065. McLENNAN. On a kind of Radioactivity imparted to certain salts by Cathode Rays.

Phil. Mag., 1902, [**6**], **3**, 195–203.

1902: 1066. REYNOLDS. Presidential Address to the Chemical Society, March, 1902.

J. Chem. Soc. Lond., 1902, **81**, 609–620; Chem. Soc. Lond. Proc., 1902, **18**, 77–80.

1902: 1067. STONEY. On the Law of Atomic Weights.

Phil. Mag., 1902, [**6**], **4**, 411–416 [Plate IV].

1902: 1068. RUTHERFORD. The Cause and Nature of Radioactivity. Part II.

Phil. Mag., 1902, [**6**], **4**, 569–585.

1902: 1069. KÖTHNER. Selbststrahlende Materie, Atome und Elektronen.

Ztschr. angew. Chem., 1902, **15**, 1153–1168, 1183–1193.

1902: 1070. KILLING. Mikroskopische Glühkörper Untersuchungen.

J. Gasbel., 1902, **45**, 461; Ztschr. angew. Chem., 1902, **15**, 1220.

1902: 1071. ALEXANDER. Jahresberichte der angewandten Chemie und verwandter Gebiete. Fortschritte auf dem Gebiete der Gasometrie bezw. Gasmessung und Gasanalyse.

Chem. Ztg., 1902, **26**, 781–786.

1902: 1072. RUTHERFORD and SODDY. Note on the condensation points of the Thorium and Radium emanations.

Chem. Soc. Lond. Proc., 1902, **18**, 206, 219–220; Chem. Ztg., 1902, **26**, 1204.

1902: 1073. RUTHERFORD and SODDY. The Radioactivity of Thorium Compounds. I. An Investigation of the Radioactive Emanation.

J. Chem. Soc. Lond., 1902, **81**, 321–350; Ztschr. physikal. Chem., 1902, **41**, 507–508; Ztschr. angew. Chem., 1902, **15**, 112; Bull. soc. chim. Paris, 1902, [**3**], **28**, 722–723; Chem. Ztg. Rep., 1902, **26**, 115–116; Chem. Centrbl., 1902, **73**, **I**, 964.

1902: 1074. RUTHERFORD and SODDY. The Radioactivity of Thorium Compounds. II. The Cause and Nature of Radioactivity.

J. Chem. Soc. Lond., 1902, **81**, 837–860; Bull. soc. chim. Paris, 1902, [**3**], **28**, 975–977; Chem. Centrbl., 1902, **73**, **II**, 6, 419–420.

1902: 1075. SODDY. The Radioactivity of Uranium.

J. Chem. Soc. Lond., 1902, **81**, 860–865; Bull. soc. chim. Paris, 1902, [**3**], **28**, 977–978; Chem. Centrbl., 1902, **73**, **II**, 420.

1902: 1076. RUTHERFORD and SODDY. Die Ursache und Natur der Radioactivität.

Ztschr. physikal. Chem., 1902, **42**, 81–109; Chem. Centrbl., 1902, **73**, **II**, 1290.

1902: 1077. SODDY. The Radioactivity of Uranium.

Chem. News, 1902, **86**, 199–200; Chem. Centrbl., 1902, **73**, **II**, 1290.

1902: 1078. RUTHERFORD and Miss H. T. BROOKS. The new gas from Radium.

Trans. Roy. Soc. of Canada, 1902, Series (2), **7**, Section 3, 21–25; J. Chem. Soc. Lond., 1902, **82**, **2**, 438; Chem. News, 1902, **85**, 196–197; Chem. Centrbl., 1902, **73**, **I**, 1186.

1902: 1079. BRAUNER and PAVLICEK. (Revision of the Atomic Weight of Lanthanum.)

J. Chem. Soc. Lond., 1902, **81**, 1243–1269; Chem. Ztg. Rep., 1902, **26**, 245; Chem. Centrbl., 1902, **73**, **II**, 883.

1902: 1080. BASKERVILLE and LEMLY. Some new reactions of Thorium and allied elements with organic bases.

Proc. Am. Chem. Soc., 1902, **24**, 67.

1902: 1081. BASKERVILLE and LEMLY. Deportment of pure Thorium and allied elements with organic bases.

Proc. Am. Chem. Soc., 1902, **24**, 69.

1902: 1082. HOFMANN and WÖLFL. Über radioactive Stoffe. I. Ueber radioactives Blei.

Ber., 1902, **35**, 1453–1457; J. Chem. Soc. Lond., 1902, **82**, **2**, 397; Chem. Ztg. Rep., 1902, **26**, 138; Ztschr. angew. Chem., 1902, **15**, 783; Chem. Centrbl., 1902, **73**, **II**, 1143–1144.

1902: 1083. Rutten. Das System Wismutoxyd, Saltpetersäure und Wasser, mit 19 Figuren auf 3 Tafeln.

Ztschr. anorgan. Chem., 1902, **30**, 342–405; J. Chem. Soc. Lond., 1902, **82**, **2**, 386.

1902: 1084. Pfeiffer. Die Halogenosalze.

Ztschr. anorgan. Chem., 1902, **31**, 191–234; Chem. Ztg. Rep., 1902, **26**, 197.

1902: 1085. Giesel. Ueber Radium und Radioactive Stoffe.

Ber., 1902, **35**, 3608–3611; Chem. Ztg. Rep., 1902, **26**, 337; Ztschr. angew. Chem., 1902, **15**, 1269–1270; Chem. News, 1902, **86**, 250–251; Chem. Centrbl., 1902, **73**, **II**, 1444–1445.

1902: 1086. Holm. Beiträge zur kenntnis des Cers.

Inaugural-Dissertation. Kgl. Bayer, Ludwig Maximilians-Universität zu München, 1902.

1902: 1087. Davidsohn. Beitrage zur Chemie des Thoriums.

Inaugural-Dissertation. Königl. Friedrich-Wilhelms-Universität, Berlin, 1902.

1902: 1088. Marshall. The Ratios of the Atomic Weights.

Chem. Ztg., 1902, **26**, 663–664; J. Chem. Soc. Lond., 1902, **82**, **2**, 602.

1902: 1089. Aloy. Sur une réaction colorée des sels d'uranium et de l'eau oxygénée.

Bull. soc. chim. Paris, 1902, [**3**], **27**, 734–735; J. Chem. Soc. Lond., 1902, **82**, **2**, 609–610.

1902: 1090. Rutherford and Grier. Magnetic Deviation of the Rays of Radioactive Substances.

Communicated to the American Physical Soc. April 21, 1902.

1902: 1091. Rutherford and Grier. Magnetische Ablenkbarkeit der Strahlen von radioaktiven Substanzen.

Phys. Ztschr., 1901-1902, **3**, 385–390.

1902: 1092. Martin. Mathematical Expression of the Valency Law of the Periodic Table, and the Necessity for Assuming that the Elements of its First Three Groups are Polyvalent.

Chem. News, 1902, **86**, 64–65; J. Chem. Soc. Lond., 1902, **82**, **2**, 649.

1902: 1093. Drossbach. Beitrag zur Chemie der Monazitbestandtheile.

Ber., 1902, **35**, 2826–2831; J. Chem. Soc. Lond., 1902, **82**, **2**, 659; Ztschr. angew. Chem., 1902, **15**, 1141; Chem. Centrbl., 1902, **73**, **II**, 1242–1243.

1902: 1094. Cleve, Astrid. Bidrag till kännedomen om Ytterbium.

Öfv. K. Sv. Vet. Akad. förh., 1901, **58**, 573-618.

1902: 1095. Giesel. Über radioaktive Substanzen und deren Strahlen.
Sammlung Chemischer und chemisch-technischer Vorträge, 1902, VII Bd., 1–28, 4 Ill.; Phys. Ztschr., 1901–1902, **3**, 351.

1902: 1096. Rutherford and Grier. Deviable Rays of Radioactive Substances.
Phil. Mag., 1902, [**6**], **4**, 315–330; J. Chem. Soc. Lond., 1902, **82**, **2**, 637–638.

1902: 1097. Elster and Geitel. Über die Radioaktivität der im Erdboden enthaltenen Luft.
Phys. Ztschr., 1901–1902, **3**, 574–577.

1902: 1098. Schilling. Die eigentlichen Thoritmineralien.
Ztschr. angew. Chem., 1902, **15**, 921–929; J. Soc. Chem. Ind., 1902, **21**, 1293; Chem. Centrbl., 1902, **73**, **II**, 1010.

1902: 1099. Staigmüller. Das periodische System der Elemente.
Ztschr. physikal. Chem., 1902, **39**, 245–248; J. Chem. Soc. Lond., 1902, **82**, **2**, 129; Bull. soc. chim. Paris, 1902, [**3**], **28**, 222–223; Chem. Centrbl., 1902, **73**, **I**, 165.

1902: 1100. ———. Bericht der Internationalen Atomgewichts-Commission.
Ztschr. angew. Chem., 1902, **15**, 1305–1307.

1902: 1101. Waegner. Die neuentdeckungen auf dem Gebiete der chemischen Grundstoffe seit 1888.
Chem. Ztg., 1902, **26**, 1103–1107.

1902: 1102. Böhm. Die modificirte Chromsäure-Trennungsmethode in ihrer Anwendung auf die Ceritelemente.
Ztschr. angew. Chem., 1902, **15**, 1282–1299.

1902: 1103. Gladstone and Hibbert. Colloids of Zirconium, compared with those of other Metals of the Fourth Group.
Brit. Assoc. Adv. Sci., 1902, 585–586; Chem. News, 1902, **86**, 175; Chem. Ztg., 1902, **26**, 909–910.

1902: 1104. Rutherford and Soddy. The Radioactivity of Thorium Compounds. I. An Investigation of the radioactive Emanation.
Chem. News, 1902, **85**, 271–272, 282–285, 293–295, 304–308.

1902: 1105. Rutherford and Soddy. The Radioactivity of Thorium Compounds. II. The Cause and Nature of Radioactivity.
Chem. News, 1902, **86**, 97–101, 132–135, 169–170.

1902: 1106. Marc. Zur Kenntniss des Terbiums.
Ber., 1902, **35**, 2382–2390; Chem. Ztg. Rep., 1902, **26**, 210; Chem. Centrbl., 1902, **73**, **II**, 498.

1902: 1107. ———. Twentieth Annual Report of the Committee on Indexing Chemical Literature.

Proc. Am. Assoc. Adv. Science, 1902, **51**, 560–585; Chem. News, 1902, **86**, 13–15.

1902: 1108. Elster and Geitel. Radioactivité dans l'air atmospherique.

Arch. sci. nat., 1902, [**4**], **13**, 113–128; Chem. Centrbl., 1902, **73**, **I**, 698–699.

1902: 1109. Becquerel. "Sur les corps radioactifs."

Royal Institution, March 7, 1902; Chem. News, 1902, **85**, 96, 108, 169–172.

1902: 1110. Cleve, Astrid. Beiträge zur Kenntnis des Ytterbiums.

Ztschr. anorgan. Chem., 1902, **32**, 129–163; J. Chem. Soc. Lond., 1902, **82**, **2**, 659–660; Chem. News, 1902, **86**, 248–249, 262–263, 275–277, 285–287, 287–302, 311–312; Chem. Ztg. Rep., 1902, **26**, 1-2, 261-262.

1902: 1111. P. Curie et Mme. Curie. Sur les corps radioactifs.

C. R., 1902, 134, 85–87; Chem. News, 1902, **85**, 71.

1902: 1112. Hartley. The Absorption-Spectra of Metallic Nitrates. Part I.

J. Chem. Soc. Lond., 1902, **81**, 556–574; Chem. Soc. Lond. Proc., 1902, **18**, 62, 67-68, 239; Bull. soc. chim. Paris, 1902, [**3**], **28**, 871; Chem. News, 1902, **85**, 162; Chem. Centrbl., 1902, **73**, **1**, 1037; 1902, **73**, **II**, 1311.

1902: 1113. Hartley. The Absorption-Spectra of Metallic Nitrates. Part II.

Chem. Soc. Lond. Proc., 1902, **18**, 221, 239–240; J. Chem. Soc. Lond., 1903, **83**, 221–246; Chem. News, 1902, **86**, 270, 303.

1902: 1114. ———. Report of the Committee on the Atomic Weight of Thorium. Award to Charles Baskerville. $50.

Proc. Am. Assoc. Adv. Science, 1902, **51**, 568.

1902: 1115. Rutherford. Sehrdurchdringende Strahlen von radioaktiven Substanzen.

Phys. Ztschr., 1901–1902, **3**, 517–520.

1902: 1116. Hartley. Wave-Length Tables of the Spectra of the Elements and Compounds.

Report of the Committee, consisting of Sir H. E. Roscoe (chairman), Dr. Marshall Watts (secretary), Sir J. N. Lockyer, Professor J. Dewar, Professor G. D. Liveing, Professor A. Schuster, Professor W. N. Hartley, Professor Wolcott Gibbs, and Captain Sir W. De W. Abney. Brit. Assoc. Adv. Sci., 1902, 137–174; Chem. Ztg., 1902, **26**, 909–910.

1902: 1117. Ackroyd. The Telluric Distribution of the Elements in Relation to their Atomic Weights.

Brit. Assoc. Adv. Sci., 1902, 581; Chem. News, 1902, **86**, 187-188.

1902: 1118. Brauner. "On Position of Rare Earths in Mendelejeff's periodical system of the elements."

J. Russ. Phys. Chem. Ges., 1902, **34**, 2; Nature, 1902, **66**, 66.

1902: 1119. McLennan and Burton. Some Experiments on the Electrical Conductivity of Atmospheric Air.

Proc. of the American Physical Soc., 1902, Dec. 31; The Physical Review, 1903, **16**, 174, 184-192.

1902: 1120. McLennan. Induced Radioactivity Excited in Air at the Foot of Waterfalls.

Proc. of the American Physical Soc., 1902, Dec. 31; The Physical Review, 1903, **16**, 173, 238-243.

1902: 1121. Geipel. Krystallographisch-optische Studien an synthetisch dargestellten Verbindungen.

Ztschr. Kryst., 1902, **35**, 608-628; Min. Mitthl., 1902, **21**, 364 Lit.

1902: 1122. Derby. On the Occurrence of Monazite in Iron Ore and in Graphite.

Am. J. Sci., 1902, [**4**], **13**, 211-212; J. Am. Chem. Soc., 1902, **24**, in Review Am. Chem. Research, 1902, **8**, 205; J. Chem. Soc. Lond., 1902, **82**, **2**, 331.

1902: 1123. Rutherford and Allen. Excited Radioactivity and Ionization of the Atmosphere.

Phil. Mag., 1902, [**6**], **4**, 704-723.

LIST OF JOURNALS EXAMINED.

Abstr. Papers Roy. Soc. London.
: **Abstracts of the Papers Communicated to the Royal Society of London. 1800–1854, 6 vols.**

Afh. Fys. Kemi.
: **Afhandlingar i Fysik, Kemi och Mineralogi. Stockholm, 1818, Vols. 5, 6.**

Chem. Ztg.
: **Allgemeine Chemiker Zeitung, mit Handelsblatt, Cöthen. 1877–1885, 9 vols.**
: **Continued under the title Chemiker Zeitung. 1886–1899, 14 vols.**

Proc. Am. Acad. Arts and Sci.
: **American Academy of Arts and Sciences. Proceedings. 1846–1901, 37 vols.**

Am. Chem.
: **American Chemist. 1870–1877, 6 vols. and 6 nos.**

Am. Chem. J.
: **American Chemical Journal. 1879–1901, 26 vols.**

J. Am. Chem. Soc.
: **American Chemical Society. Journal. 1879–1902, 24 vols.**

Am. Gas Light J.
: **American Gas Light Journal. 1884–1900, vols. 40–73.**

Trans. Amer. Inst. M. E.
: **American Institute of Mining Engineers. Transactions. 1871–1901, 3 vols.**

Am. J. Sci.
: **American (The) Journal of Science (Silliman). 1818, 1 vol.**
: **Continued under the title American (The) Journal of Science and Arts.**
: **1820–1845, 49 vols.**
: **1846–1870, 2° series, 50 vols.**
: **1871–1879, 3° series, 18 vols.**
: **Continued under the title American (The) Journal of Science.**
: **1880–1895, 3° series, 32 vols.**
: **1896–1902, 4° series, 13 vols.**

Bulletin of the American Physical Soc.
: **American Physical Society. Bulletin. 1899–1902, 3 vols.**

Analyst.
: **Analyst (The). 1877–1902, 27 vols.**

Ann. der Pharm.
: **Annalen der Pharmacie. 1832–1839, 32 vols.**

Ann. Chem. (Liebig).
: **Continued under the title Annalen der Chemie und Pharmacie. 1840–1873, 136 vols.**
: **Continued under the title Justus Liebig's Annalen der Chemie und Pharmacie. 1873–1901, 151 vols.**
: **Supplement-Bände. 1861–1872, 8 vols.**

Ann. chim. phys.

Annales de chimie et de physique.

1816–1840, 2° series, 75 vols.
1841–1863, 3° series, 69 vols.
1864–1873, 4° series, 30 vols.
1874–1883, 5° series, 30 vols.
1884–1893, 6° series, 30 vols.
1894–1901, 7° series, 24 vols.

Ann. der Phys. Pogg.

Annalen der Physik und Chemie.

1824–1833, 1° series, 30 vols.
1834–1843, 2° series, 30 vols.
1844–1853, 3° series, 30 vols.
1854–1863, 4° series, 30 vols.
1864–1873, 5° series, 30 vols.
1874–1877, 6° series, 10 vols.

Ann. der Phys. Wied.

1877–1899, [7], Neue Folge, 69 vols.

Ann. der Phys. Drude.

Continued under the title Annalen der Physik.

1900–1901, [8], Vierte Folge, 6 vols.

Beibl. Ann. der Phys.

Beiblätter zu den Annalen der Physik und Chemie. 1877–1899, 23 vols.
Continued under the title Beiblätter zu den Annalen der Physik.
1900–1901, 2 vols.

Ann. der Phys. Pogg.

Ergänz. Ergänzungsbände. 1842–1878, 8 vols.
Jubelb. Jubelband. 1874, 1 vol.

Ann. mines.

Annales des mines.

1816–1826, 1° series, 13 vols.
1827–1831, 2° series, 8 vols.
1832–1841, 3° series, 20 vols.
1842–1851, 4° series, 20 vols.

Mémoires:
- 1852–1861, 5° series, 20 vols.
- 1862–1871, 6° series, 20 vols.
- 1872–1881, 7° series, 20 vols.
- 1882–1891, 8° series, 20 vols.
- 1892–1901, 9° series, 18 vols.

Ann. Phil. Thomson.

Annals of Philosophy. 1813–1826, 28 vols.

L'année scientif.

Année (L') scientifique et industrielle. 1857–1877, 21 vols.

Annuaire sci. chim.

Annuaire des sciences chimiques ou Rapport sur les progrès des sciences naturelles présenté à l'académie Stokolm [sic] par Berzelius. Supplément à son Traité de Chimie, Traduit en Français par H. D. Paris, 1837, 1 vol.

Annuaire de chimie.
Annuaire de chimie. Millon and Reiset. 1845–1851, 7 vols.

Arch. ges. Naturl.
Archiv für die gesammte Naturlehre. 1824–1830, 18 vols.

Archiv. für Chem. (Kastner).
Continued under the title Archiv für Chemie und Meteorologie. 1830–1835, 9 vols.

Archiv Bergbau.
Archiv für Bergbau und Hüttenwesen. 1818–1831, 20 vols.
Continued under the title Archiv für Mineralogie, Geognosie, Bergbau und Hüttenkunde. 1829–1855, 26 vols.

Arch. sci. phys.
Bibliothèque universelle.
Archives des sciences physiques et naturelles, Genève.
1846–1857, 36 vols.
1858–1878, nouvelle période, 64 vols.
1878–1895, 3° series, 34 vols.
1896–1899, 4° series, 8 vols.

Årsb. Phys. Kemi.
Årsberättelse om Framstegen i Physik och Kemi till Kongliga. Vetenshaps Akademien. 1821–1840, 20 vols.

Årsb. Kemi.
Continued under the title Årsberättelse om Framstegen i Kemi och Mineralogi. 1841–1847, 7 vols.
Continued under the title Årsberättelse om Framstegen i Kemi. 1847–1849, 3 vols.

Berg u. H. Ztg.
Berg-und Hüttenmännische Zeitung.
1842–1846, 5 vols.
1847–1901, 55 vols.

Bibl. univ.
Bibliothéque universelle des sciences, belles lettres et arts "classe sciences et arts." 1816–1835, 60 vols.

Boston J. Chem.
Boston Journal of Chemistry. 1869–1880, vols. 4–14.
Continued under the title Boston Journal of Chemistry and Popular Science Review. 1881, 1882, 2 vols.

Pop. Sci. News.
Continued under the title Popular Science News and Boston Journal of Chemistry. 1883–1898, vols. 4–16.

Boston J. Nat. Hist.
Boston Journal of Natural History. 1845–1863, vols. 5–7.

Brit. Assoc. Adv. Science.
British Association for the Advancement of Science. 1831–1901, 71 vols.

Bull. de pharm.
Bulletin de pharmacie. 1809–1814, 6 vols.

J. de pharm.
Continued under the title Journal de pharmacie et des sciences accessoires.
1815–1841, 2° series, 27 vols.
Journal de pharmacie et de chimie.
1842–1864, 3° series, 46 vols.
1865–1879, 4° series, 30 vols.
1880–1894, 5° series, 30 vols.
1895–1901, 6° series, 14 vols.

Chem. News.
Chemical News (The). 1860–1902, 86 vols.

Chem. News (Am. repr.).
Chemical News and Journal of Physical Science (American reprint). 1867–1870, 6 vols. and 6 nos.

Chem. Gaz.
Chemical Gazette. 1842–1859, 17 vols.

Chem. Soc. (Lond.) Proc.
Chemical Society of London.
Proceedings. 1841–1843, 1 vol.
Memoirs and Proceedings. 1843–1848, 2 vols.

Q. J. Chem. Soc. (Lond.).
Quarterly Journal of the Chemical Society of London. 1849–1862, 14 vols.

J. Chem. Soc. (Lond.).
Journal of the Chemical Society of London.
1862, 1 vol.
1863–1875, n. s., 13 vols.
1876, 3° series, 2 vols.
1877, 4° series, 2 vols.
1878–1892, 5° series, 30 vols.
1893–1902, 6° series, 32 vols.

Chem. Soc. (Lond.) Proc.
Proceedings of the Chemical Society of London. 1885–1901, 17 vols.

Chem. Centrbl.
Chemisches Centralblatt. See Pharmaceutisches Centralblatt.

Chem. Ind. (Jacobsen).
Chemische (Die) Industrie. 1878–1901, 24 vols.

Chem. Ztg. Rep.
Chemisches Repertorium (Supplement zur "Chemiker Zeitung").
1886–1902, 17 vols.

Chem-techn. Mitthl.
Chemisch-technischen Mittheilungen (Die) der neuesten Zeit (Elsner). 1846–1881, 37 vols.

Chemist (Watt).
Chemist (The). 1840–1858, 16 vols., excepting 1840, 1842, 1852–1853, 3 vols.

Proc. Col. Sci. Soc.
Colorado Scientific Society. Proceedings. 1883–1896, 5 vols.

C. r.
(Comptes rendus. See Institut de France.)

C. r. mensuels.
Comptes rendus mensuels des réunions da la société de l'industrie minérale.
1877–1901, 17 vols.

Congrés intern. phys.
Congrés international physique. 1900, 3 vols.

Cosmos.
Cosmos. 1885–1901, 45 vols.

Dana's Min.
Dana's Mineralogy. 1874, 5th edit.
Dana's Mineralogy. Appendix III to 5th edit.
Dana's Mineralogy. Appendix I, 1899 edit.

Ber.
Deutsche chemische Gesellschaft zu Berlin, Berichte.
1868–1902, 35 years, 90 vols.

Edin. J. Sci.
Edinburgh (The) Journal of Science. 1824-1829, 10 vols.

Edin. Phil. J.
Edinburgh Philosophical Journal. 1819-1826, 14 vols.
Continued under the title The Edinburgh New Philosophical Journal.
1826–1854, 57 vols.
1855–1864, 19 vols.

Acta Societatis Scientiarum Fennicæ.
Finska Vetenskaps Akademien. Acta Societatis Scientiarum fennicæ.
1842–1875, vols. 1-10.

Gazzetta chim. italiana.
Gazzetta chimica italiana. 1871–1889, 19 vols.

Geol. Fören. Förh.
Geologiska Föreningens i Stockholm Förhandlingar. 1872–1898, 20 vols.

Giorn. min.
Giornale di mineralogia, cristallografia e petrografia. Milano.
1890–1894, 5 vols.

Gmelin-Kraut, Handb. anorg. Chemie.
Gmelin-Kraut, Handbuch der anorganische Chemie.
1872, vol. I^{2}.
1877, vol. I.
1874–1886, vol. II^{1}.
1875, vol. III.
1897, vol. II^{II}.

Archives néerlandaises des sciences exactes et naturelles.
Hollandsche maatschappij der wetenschappen te Haarlem.
Archives néerlandaises des sciences exactes et naturelles. 1890, vol. 24.

Industries and Iron.
Industries and Iron. London, 1887, 2 vols.

Il Nuovo Cim.

Il Nuovo Cimento.

1855–1868, 28 vols.
1869–1876, 2° series, 16 vols.
1877–1894, 3° series, 36 vols.

Императорская Академіи Наукъ, Санктпетербургъ.

(Imperial Academy of Sciences, St. Petersburg, Russia.)

Mém. VI^{e} Sér. Sc. math.-phys. et nat.

Mémoires de l'Académie impériale des sciences de Saint-Pétersbourg. Sixième Série. Sciences mathématiques, physiques et naturelles. 2 tomes, 1831–1833.

Mém. VI^{e} Sér. Sc. math. et phys.

Mémoires de l'Académie impériale des sciences de Saint-Pétersbourg. Sixième Série. Sciences mathématiques, physiques et naturelles. Tomes III–IX. Première partie. Sciences mathématiques et physiques. Tomes I–VII, 1838–1859.

Mém. VI^{e} Sér. Sc. nat.

Mémoires de l'Académie impériale des sciences de St.-Pétersbourg. Sixième Série. Sciences mathématiques, physiques et naturelles. Seconde partie. Sciences naturelles. Tomes I (III)–VIII (X), 1835–1859.

Mém. des sav. étr. **Записки Посторонних Ученыхъ.**

Mémoires présentés à l'Académie impériale des sciences de St.-Pétersbourg par divers savans et lus dans ses assemblées. Tomes I–IX, 1831–1859.

Mém. VII^{e} Sér.

Mémoires de l'Académie impériale des sciences de Saint-Pétersbourg VII^{e} Série. Tomes I–XXIX, 1859–1881.

Mém. VIII^{e} Sér.

Mémoires de l'Académie impériale des sciences de Saint-Pétersbourg. VIII^{e} Série. Classe des sciences physiques et mathématiques. Tomes 1–9, 1895–1901.

R. d. actes.

Recueil des actes des séances publiques de l'Académie impériale des sciences de Saint-Pétersbourg, tenues depuis 1827 jusqu'à 1848. Vingt et un volumes, 1828–1849.

Compte-rendu.

Compte-rendu de l'Académie impériale des sciences de St.-Pétersbourg, précédé de l'état de son personnel. Années 1849–1857. Huit volumes, 1850–1858.

Bull. Sc.

Bulletin scientifique, publié par l'Académie impériale des sciences de Saint-Pétersbourg. 10 tomes, 1837–1842.

Bull. phys.-math.

Bulletin de la classe physico-mathématique de l'Académie impériale des sciences de St.-Pétersbourg. Tomes I–XVII, 1843–1859.

Bull. de l'Acad.

Bulletin de l'Académie impériale des sciences de St.-Pétersbourg. Tomes I-XLVI.

1860-1888, 32 vols.
1889-1894, nouv. sér., 3 vols.
1894-1899, 5° sér., 11 vols.

The 5th series has a Russian title besides—

Извѣстія Императорской Академіи Наукъ.

Mél. phys. et chim.

Mélanges physiques et chimiques, tirés du Bulletin physico-mathématique de l'Académie impériale des sciences de St.-Pétersbourg. 1849-1894, 13 vols.

Tableau général méthodique et alphabétique des matières contenues dans les publications de l'Académie impériale des sciences de St.-Petersbourg depuis sa fondation.

1re Partie. Publications en langues étrangères, 1872 (contains all papers in foreign tongue to 1870 inclusive).

Supplément I. Publications en langues étrangères, 1871 à 1 Nov., 1881.

Catalogue des livres publiés en langues étrangères par l'Académie impériale des sciences de St.-Pétersbourg. 1867, 121 pages, followed by supplément (no date), probably about 1867, 2 pages.

Supplément I. aux catalogues des livres publiés en langues russe et étrangères par l'Académie impériale des sciences de St.-Pétersbourg. 1869.

Supplément II. aux catalogues des livres publiés en langues étrangères par l'Académie impériale des sciences de St.-Pétersbourg. (Édition de 1867.)

Catalogue des livres publiés par l'Académie impériale des sciences. 1876.
I. Publications en langue russe.

Catalogue des livres publiés par l'Académie impériale des sciences. 1877.
II. Publications en langues étrangères.

Catalogue des livres publiés par l'Académie impériale des sciences. 1888.
I. Publications en langue russe.

C. R.

Institut de France. "Comptes rendus hebdomadaires des séances de l'Académie des sciences."

Paris, 1835-1902, 135 vols., and 2 supplements, 1856, 1861.

Jahrbuch Chem.

Jahrbuch der Chemie, Meyer. 1891, vol. 8.

Jahrb. Min.

Jahrbuch für Mineralogie, Geognosie, Geologie und Petrefaktenkunde.

1830-1832, 3 vols.

Continued under the title Neues Jahrbuch für Mineralogie, Geognosie, Geologie und Petrefaktenkunde.

1833-1862, 30 vols.

Continued under the title Neues Jahrbuch für Mineralogie, Geologie und Palæontologie.

1863-1902, 61 vols.

Jahrb. Min. Beiläge Band.
Beiläge Bände. 1881–1902, 15 vols.

Jahrb. Erfind.
Jahrbuch der Erfindungen und Fortschritte auf den Gebieten der Physik und Chemie, etc. 1865–1901, 37 vols.

Wagner's Jsb.
Jahresbericht über die Fortschritte der chemischen Technologie (Wagner). 1855–1901, 49 vols.

Berzelius Jsb.
Jahresbericht über die Fortschritte der physischen Wissenschaften.
1822–1841, 20 vols.
Continued under the title Jahresbericht über die Fortschritte der Chemie und Mineralogie. 1842–1851, 10 vols.

Jsb. Chem.
Jahresbericht über die Fortschritte der reinen, pharmaceutischen und technischen Chemie, Physik, Mineralogie und Geologie.
1847–1893, II, 56 vols.
1896–1897, 6 vols.

Jsb. rein. Chem.
Jahresbericht über die Fortschritte auf dem Gebiete der reinen Chemie.
1873–1881, 9 vols.

J. anal. Chem.
Journal of Analytical Chemistry. 1887–1893, 7 vols.

J. für Chem. (Schweigger).
Journal für Chemie und Physik (Schweigger). (See Neues allgemeines Journal der Chemie.)

J. Chem. Soc. (Lond.).
Journal of the Chemical Society of London. (See Chemical Society of London.)

J. Frankl. Inst.
Journal of the Franklin Institute, etc.
1826–1827, 4 vols.
1828–1840, 2° series, 26 vols.
1841–1901, 3° series, 152 vols.

J. Gas L.
Journal of Gas Lighting, Water Supply, and Sanitary Improvements, London. 1885–1899, vols. 45–73^2, 31 vols.

J. Gasbel.
Journal für Gasbeleuchtung und verwandte Beleuchtungsarten, 1893–1895, vols. 36–38 and 1897–1901, 40–44, inclusive.

J. de pharm.
Journal de pharmacie et des sciences accessoires. (See Bulletin de pharmacie.)

J. prakt. Chem.
Journal für praktische Chemie (Erdmann.) (See Neues allgemeines Journal der Chemie.)

Jour. phys.

Journal de physique théorique et appliquée.

1882–1891, 2° series, 10 vols.

1892–1901, 3° series, 10 vols.

Журн. Русск. Хим. Общ.

Журналъ Русскаго Химическаго Общества.

[Journal of the Russian Chemical Society.] St. Petersburg, 1869–1872, Vols 1–4 continued under the title:

Журн. Русск. Хим. Общ. и Физ. Общ.

Журналъ Русскаго Химическаго Общества и Физическаго Общества при Императорскомъ С. Петербургскомъ Университетѣ.

[Journal of the Russian Chemical Society and of the Physical Society of the Imperial University of St. Petersburg. St. Petersburg, 1873–1878, Vols 5–10 continued under the title:

Журн. Русск. Физ.-Хим. Общ.

Журналъ Русскаго Физико-Химическаго Общества при Императорскомъ С.-Петербургскомъ Университетѣ.

[Journal of the Russian Physico-Chemical Society of the Imperial University of St. Petersburg.] St. Petersburg, 1879–1884 Vols 1–16.

Soc. franç. phys. Séances.

Séances de la société française de physique. 1873–1900, 28 vols.

J. techn. Chem.

Journal für technische und ökonomische Chemie. 1828–1833, 18 vols.

Sitzungsber. Akad. d. Wien, math.-naturw. cl.

Kaiserliche Akademie der Wissenschaften, Wien. Sitzungsberichte, mathematisch-naturwissenschaftliche classe. 1848–1901, 110 vols.

Acta Universitatis Lund.

Regia Academia Carolina, Lund, Sweden. Acta Universitatis Lundensis. Lunds Universitets Års-Skrift. 1864–1900, 36 vols.

Berichte Königl. Akad. d. Wiss., Berlin.

Königliche Akademie der Wissenschaften zu Berlin. Bericht über die zur Bekanntmachung geeigneten Verhandlungen. 1836–1855, 19 vols.

Monatsberichte Königl. Akad. d. Wiss., Berlin.

Monatsberichte. 1856–1881, 26 vols.

Sitzungsber. Königl. Akad. d. Wiss., Berlin.

Sitzungsberichte. 1882–1901, 37 vols.

Sitzungsber. bayr. Akad. d. Wiss.

Königlich bayerische Akademie der Wissenschaften. München. Sitzungsberichte. 1860–1870, 21 vols.

Sitzungsber. böhm. Gesells. d. Wiss.

Königlich bömische Gesellschaft der Wissenschaftenin. Prag. Sitzungsberichte. 1879–1891, 13 vols.

Nachricht von G. A. Univ. Göttingen.

Königliche Gesellschaft der Wissenschaften zu Göttingen. Nachrichten von der Georg Augustus Universität und der Königliche Gesellschaft der Wissenschaften zu Göttingen. 1846, II.

Videnskab. Selskabs Skrifter.

Det Konggelige Danske Videnskabernes Selskabs Skrifter "Naturvidenskabelig og Mathematisk Afdeling" Kjöbenhavn.
1868–1880, 5° series, vols. 7–12, inclusive.

Kongl. Sv. Vet. Acad. Handl.

Kongliga Svenska Vetenskaps Academiens Handlingar. Stockholm.
1813–1896, 73 vols.

Bihang till Kongl. Sv. Vet. Akad. Handl.

Bihang till Kongliga Svenska Vetenskaps Akademiens Handlingar.
1872–1900, 25 vols.

Öfv. K. Sv. Vet. Akad. Förh.

Öfversigt af Kongliga Vetenskaps-Akademiens Förhandlingar.
1844–1900, 57 vols.
1901, vol. 58, Nos. 1–5.

Ztschr. Chem.

Kritische Zeitschrift für Chemie, Physik und Mathematik. 1858, 1 vol.
Continued under the title Kritische Zeitschrift für Chemie, Physik, Mathematik und die verwandten Wissenschaften, etc. 1859, 1 vol.
Continued under the title Zeitschrift für Chemie und Pharmacie.
1860–1864, 5 vols.
Continued under the title Zeitschrift für Chemie. 1865–1871, 7 vols.

La Nature.

La Nature. 1873–1901, 57 vols.

Kokscharow. Materialien z. Min. Russ.

Materialien zur Mineralogie Russlands, Kokscharow. 1853–1878, 8 vols.

Min. Mag.

Mineralogical (The) Magazine and Journal of the Mineralogical Society of Great Britain and Ireland.
1876–1902, No. 60, 13 vols.

Min. Mitth.

Mineralogische Mittheilungen (Tschermak). 1871–1877, 7 vols.
Continued under the title Mineralogische und petrographische Mittheilungen. 1878–1902, 21 vols.

The Mineral Industry.

Mineral Industry (The). New York, 1901, vol. 10.

Monatsh. Chem.

Monatshefte für Chemie und verwandter theile anderer wissenschaften.
1880–1901, 22 vols.

Monit. sci. (Quesneville).

Moniteur scientifique, Quesneville. (See Revue scientifique et industrielle.)

Nature.

Nature. 1869–1901, 65 vols.

Naturw. Rundschau.

Naturwissenschaften Rundschau. 1886–1901, 16 vols-

N. allg. J. Chem. (Gehlen).

Neues allgemeines Journal der Chemie (Gehlen). 1803–1806, 6 vols.

J. für Chem. (Gehlen).

Continued under the title Journal für die Chemie, Physik und Mineralogie.
1806–1810, 9 vols.

J. für Chem. (Schweigger).

Continued under the title Journal für Chemie und Physik.
1811–1833, 69 vols.

J. prakt. Chem.

Continued under the title Journal für praktische Chemie.
1834–1901, 172 vols.

Nova Acta Soc. Sci. Upsala.

Kongliga Vetenskaps Societeten. Nova Acta Regiæ Societatis Scientiarum Upsaliensis. 1851–1891, 3° series, 14 vols., and volumen extra ordinem editum, 1877.

Ostwald's Klassiker der Exakten Wissenschaften.

Ostwald's Klassiker der Exakten Wissenschaften. 1895, Nr. 66, Nr. 68.

Pharm. Centrbl.

Pharmaceutisches Centralblatt. 1830–1849, 20 vols.

Chem. Centrbl.

Continued under the title Chemisch-pharmaceutisches Centralblatt.
1850–1855, 5 vols.

Continued under the title Chemisches Centralblatt. 1856–1902, 62 vols.

Pharm. J.

Pharmaceutical Journal and Transactions. 1841–1878, 37 vols.

Phil. Mag.

Philosophical (The) Magazine and Journal. 1815–1826, 24 vols., and numbered as vols. 45–68.

Continued under the title The Philosophical Magazine or Annals of Chemistry [etc.]. 1827–1832, 11 vols.

Continued under the title London and Edinburgh Philosophical Magazine and Journal of Science. 1832–1840, 16 vols.

Continued under the title London, Edinburgh and Dublin Philosophical Magazine and Journal of Science.
1840–1850, 3° series, 21 vols.
1851–1875, 4° series, 50 vols.
1876–1900, 5° series, 50 vols.
1901–1902, 6° series, 4 vols.

Fortschr. Phys.

Physikalische Gesellschaft zu Berlin. Fortschritte (Die) der Physik.
1845–1900, 56 years, 87 vols.

Verhandlungen.
1895–1898, vols. 14–17.
1899–1901, vols. 1, 2, 3.

Polyt. Centrbl.

Polytechnisches Centralblatt. 1835–1846, 13 vols.

Phys. Ztschr.

Physikalische Zeitschrift, Leipzig. 1899–1902, 3 vols.

Polyt. J. (Dingler).

Polytechnisches Journal.

1820–1833, 50 vols.
1834–1846, Neue Folge, 50 vols.
1846–1858, 3° series, 50 vols.
1859–1871, 4° series, 50 vols.
1871–1874, 5° series, 11 vols.

Dingl. pol. J.

Continued under the title Dingler's polytechnisches Journal.

1874–1883, 5° series, 39 vols.
1884–1896, 6° series, 50 vols.
1896–1901, 7° series, 16 vols.

Polyt. Notizblatt.

Polytechnisches Notizblatt für Chemiker, Gewerbtreibende, Fabrikanten und Künstler (Böttger). 1846–1885, 40 vols.

Pop. Sci. News.

Popular Science News and Boston Journal of Science. (See Boston Journal of Science.)

Chem. Soc. (Lond.) Proc.

Proceedings and Memoirs of the Chemical Society of London. (See Chemical Society of London.)

Progressive Age.

Progressive Age. 1899–1901, Vols. 17-19.

Q. J. Chem. Soc. (Lond.).

Quarterly Journal of the Chemical Society of London. (See Chemical Society of London.)

Quar. J. Sci.

Quarterly (The) Journal of Science. 1864–1878, 15 vols.

J. Sci. and Annals Biol.

Continued under the title Journal (The) of Science and Annals of Astronomy, Biology [etc.]. 1879–1885, 7 vols.

Rammelsberg's Min. Chem.

Rammelsberg's Mineral Chemie 1875, 2d edition.

Rammelsberg's Min. Chem. 1886, Ergänz. I.

Rammelsberg's Mineral Chemie 1886, Ergänzungsheft I.

Rammelsberg's Min. Chem. 1895, Zweites Suppl.

Rammelsberg's Mineral Chemie 1895, Zweites Supplement.

Årsb. Phys. Kemi. (Rapport annuel, etc.).

Rapport annuel sur les progrès des sciences physiques et chimiques présenté à l'académie royale des sciences de Stockholm par J. Berzelius, Traduit du Suédois par Ph. Plantamour. 1841–1844, 4 vols.

Continued under the title Rapport annuel sur les progrès de la chimie, présenté à l'académie royale des sciences de Stockholm par J. Berzelius, Traduit du Suédois par Ph. Plantamour. 1845–1846, 2 vols.

R. accad. Lincei.
Reale accademia dei lincei, Roma.
Atti [serie 1] dell' Accademia pontificia de' nuovi Lincei. 1847–1873, 26 vols. Roma, 1851–1873.
Atti [serie 2]. Memorie della classe di scienze fisiche, matematiche e naturali. 1873–1876, 8 vols. Roma, 1875–1880.
Atti [serie 3]. Memorie della classe di scienze fisiche, matematiche e naturali. 1876–1883, 18 vols. Roma, 1877–1883.
Atti [serie 3]. Transunti. 1876–1884, 8 vols. Roma, 1877–1884.
Atti [serie 4]. Memorie della classe di scienze fisiche, matematiche e naturali. 1884–1890, 7 vols. Roma, 1884–1890.
Atti [serie 4]. Rendiconti. 1884–1891, 7 vols. Roma, 1885–1891.
Atti [serie 5]. Rendiconti, classe di scienze fisiche, matematiche e naturali. 1892–1902, 11 vols. Roma, 1892-1902.

Recueil trav. chim. Pays-Bas.
Recueil des travaux chimiques des Pays-Bas. 1882–1893, 12 vols.

Rép. chim. pure.
Répertoire de chimie pure et appliquée (Wurtz). 1858-1862, 4 vols.

Rép. chim. appl.
Répertoire de chimie pure et appliquée (Barreswill). 1859-1863, 5 vols.

Rep. tech. jour.-lit.
Repertorium der technischen journal-litteratur. 1879–1899, 21 vols.

Review of Am. Chem. Research.
Review of American Chemical Research (in The Journal of the American Chemical Society). 1895–1902, 8 vols.

Revue cours. scientif.
Revue des cours scientifiques de la France et de l'étranger. 1863–1870, 7 vols.
Continued under the title Revue scientifique de la France et de l'étranger. 1871-1884, 26 vols.

Revue sci.
Continued under the title Revue scientifique (Revue rose). 1884–1901, 37 vols.

Revue de chim. ind.
Revue de chimie industrielle. 1897, 1898, vols. 8 and 9.

Revue gén. sci.
Revue générale des sciences pures et appliquées. 1890-1901, 12 vols.

Revue sci. (Quesneville).
Revue scientifique et industrielle, [etc.] (Quesneville).
1840–1844, 1° series, 16 vols.
1844–1847, 2° series, 15 vols.

Monit. sci. Quesneville.
Followed by Moniteur (Le) scientifique du chimiste et du manufacturier. 1861-1863, 2 vols.
Continued under the title Moniteur (Le) scientifique.
1864–1870, 2° series, 7 vols.

Monit. sci. (Quesneville).

Continued under the title Moniteur scientifique de Quesneville.
1871–1886, 3° series, 16 vols.
1887–1901, 4° series, 15 vols.

Rose, nach dem Ural.

Rose, Reise nach dem Ural, dem Altai und dem Kaspischen Meere.
1837, 1842, 2 vols.

Quart. Jour. Sci. Arts.

Journal (The) of Science and Arts, London. 1816, 1 vol.
Continued under the title Quarterly (The) Journal of Literature, Science and the Arts. 1817, 1 vol.
Continued under the title Journal (The) of Science and the Arts. 1817–1818, 3 vols.
Continued under the title Quarterly (The) Journal of Science, Literature and the Arts.
1820–1827, 17 vols.
1827–1830, 7 vols.

J. Royal Inst.

Continued as Journal of the Royal Institution. 1830–1831, 2 vols.

R. Soc. Cat. Sci. Papers.

Royal Society Catalogue of Scientific Papers. 1800-1883, 12 vols. London, 1867–1902.

Roy. Soc. Lond. Proc.

Royal Society of London. Proceedings. 1854–1902, 70 vols., excepting 1885, vol. 39.

Verh. ges. Min. Russlands.

Russisch-kaiserliche Gesellschaft für die gesammte Mineralogie. St. Petersburg. Schriften. 1842, vol. I. Verhandlungen. 1842–1847, 5 vols.

S. of M. Quar.

School of Mines Quarterly, New York. 1879–1902, 24 vols.

Science Abstracts.

Science Abstracts. 1898–1901, 4 vols.

Science.

Science. 1883–1894, 23 vols.; 1895–1901, new series, 14 vols.

Smith. Inst. Misc. Coll.

Smithsonian Institution Miscellaneous Collections. 1862–1901, 41 vols.

J. Soc. Chem. Ind.

Society of Chemical Industry. Journal. 1882–1902, 21 vols.

Bull. soc. chim. Paris.

Société chimique de Paris. Bulletin.
1864–1888, 50 vols.
1889–1902, 3° series, 28 vols.

J. Soc. Arts.

Society for the Encouragement of Arts, Manufactures and Commerce, London. Journal of the Society of Arts. 1852–1901, 49 vols.

Bull. soc. franç. min.
  Société française de mineralogie. Bulletin. 1878–1902, 25 vols.

Bull. soc. imp. Moscou.
  Société imperiale des naturalistes de Moscou. Bulletin. 1829–1898, 73 vols.

Bull. soc. ind. Mulhouse.
  Société industrielle de Mulhouse. Bulletin. 1854–1901, 71 vols.

Beudant. Traité Min.
  Traité elementaire de Mineralogie, Beudant. 1832, vols. I and II.

Tidsskrift Phys. Chemi.
  Tidsskrift for Physik og Chemi samt disse Videnskabers Anvendelse. Kjøbenhavn.
    1862–1879, 18 vols.
    1880–1891, 2° series, 12 vols.
  Continued under the title Nyt Tidsskrift for Fysik og Kemi.
    1892–1898, 3° series, 3 vols., excepting 1895.

U. S. Consular Reports.
  United States Consular Reports.
    1895–1896, Nos. 176–195.
    1901, Nos. 248–251.

Bull. U. S. Geol. Survey.
  United States Geological Survey. Bulletin. 1883–1901, 176 vols.

U. S. Geol. Survey, Min. Resources.
  United States Geological Survey, Mineral Resources of the United States. Bulletin 16, part 4, 1894-1895.

Vjschr. Nahrungsmittel.
  Vierteljahresschrift über die Fortschritte auf dem Gebiete der Chemie der Nahrungs-und Genussmittel der Gebrauchsgegenstände, sowie der hierher gehörenden Industriezweige. 1887–1898, 13 vols.

Ztschr. anal. Chem.
  Zeitschrift für analytische Chemie. 1862–1901, 40 vols.

Ztschr. anorgan. Chem.
  Zeitschrift für anorganische Chemie. 1892–1902, 33 vols.

Ztschr. chem. Ind.
  Zeitschrift für die chemische Industrie. 1887, 2 vols.

Ztschr. angew. Chem.
  Continued as Zeitscrift für angewandte Chemie. 1887–1902, 15 vols.

Ztschr. Beleucht.
  Zeitschrift für Beleuchtungswesen. 1897, vol. 3.

Ztschr. Elektrochem.
  Zeitschrift für Elektrochemie. 1894–1900, 6 vols.

Ztschr. Chem.
  Zeitschrift für Chemie und Pharmacie. (See Kritische Zeitschrift.)

Ztschr. Chem.
Zeitschrift für Chemie. (See Kritische Zeitschrift.)

Ztschr. deut. geol. Ges.
Zeitschrift der deutschen geologischen Gesellschaft. 1849–1900, 52 vols.

Ztschr. Kryst.
Zeitschrift für Krystallographie und Mineralogie. 1877–1902, 36 vols.

Ztschr. Phys. Math.
Zeitschrift für Physik und Mathematik. 1831, vol. 9.

Ztschr. physikal. Chem.
Zeitschrift für physikalische Chemie, Stöchiometrie und Verwandtschaftslehre. 1887–1902, 41 vols.

Ztschr. physikal. chem. unterricht.
Zeitschrift für den physikalischen und chemischen unterricht. 1891–1901, vols. 5–14.

Ztschr. prakt. Geol.
Zeitschrift für praktische Geologie. 1893-1901, 9 vols.

ADDENDA.

RUSSIAN TITLES.

1869 : 143. Менделѣевъ. Соотношеніе свойствъ съ атомнымъ вѣсомъ элементовъ. (On the correlation of the properties and atomic weights of the elements.)

Журналъ Русскаго Химическаго Общества.

(Journal of the Russian Chemical Society), 1869, **1**, 35, 60–77; Chem. News, 1869, **19**, 275. Roy. Soc. C. Sci. Papers, 1902, **12**, 498.

1871 : 149. Менделѣевъ. Естественная система элементовъ и примѣненіе ея къ указанію свойствъ неоткрытыхъ элементовъ. (A natural system of the elements, and its application to the indication of the properties of undiscovered elements.)

[1870] Журналъ Русскаго Химическаго Общества. (Journal of the Russian Chemical Society), 1871, **3**, 7, 25–56. Roy. Soc. C. Sci. Papers, 1902, **12**, 498.

1873 : 161. Менделѣевъ. О примѣнимости періодическаго закона къ церитовымъ металламъ (отвѣтъ Раммельсбергу.) (On the applicability of the periodic law to the cerite metals.) (Answer to Rammelsberg.)

Журналъ Русскаго Химическаго Общества и Физическаго Общества при Императорскомъ С.-Петербургскомъ Университетѣ.

(Journal of the Russian Chemical Society and of the Physical Society of the Imperial University of St.-Petersburg), 1873 г., тоже статья въ (Lieb. Ann. **168**, 45.) Roy. Soc. C. Sci. Papers, 1879, **8**, 379.

1875 : 178. Нильсонъ. О двойныхъ соляхъ хлорной и хлористой платины. (On the valency of the elements.)

Журналъ Русскаго Химическаго Общества и Физическаго Общества при Императорскомъ С.-Петербургскомъ Университетѣ.

(Journal of the Russian Chemical Society and of the Physical Society of the Imperial University of St.-Petersburg), 1877. **9**, part 2, 98-99.

1881 : 222. Менделѣевъ. Сообщеніе по поводу многихъ вновь открытыхъ Мариньякомъ, Делафонтеномъ, Клеве и Нильсономъ церитовыхъ и гадолинитовыхъ металловъ. (Communication about several cerite and gadolinite metals newly discovered by Marignac, Delafontaine, Clève and Nilson.)

Журналъ Русскаго Физико-Химическаго Общества при Императорскомъ С.-Петербургскомъ Университетѣ.

(Journal of the Russian Physico-Chemical Society of the Imperial University of St.-Petersburg), 1881 г., т. **13**, ч. хим., отд. I, проток., стр. 517-520; Chem. News, 1882, **46**, 256; Roy. Soc. C. Sci. Papers, 1902, **12**, 498.

1887 : 309. Базаровъ. Объ атомныхъ вѣсахъ элементовъ. (Sur les poids atomiques des éléments par M. A. Bazaroff.)

Журналъ Русскаго Физико-Химическаго Общества при Императорскомъ С.-Петербургскомъ Университетѣ.

(Journal de la société physico-chimique russe à l'Université de St.-Pétersbourg), 1887, **19**, 61–73.

1896: 462. Военнаго инженера Г. П. Черника. По поводу состава и природы одного церитоваго минерала изъ Батумской области. (Sur un mineral ceritique du district de Batoum par M. G. Tchernik.)

Журналъ Русскаго Физико-Химическаго Общества при Императорскомъ С.-Петербургскомъ Университетѣ.

(Journal de la société physico-chimique russe à l'Université de St.-Pétersbourg), 1896, **28**, 345-359.

Ztschr. Kryst., 1898-1899, **31**, 513-514; J. Chem. Soc. Lond., 1899, **76**, **2**, 668-669; Chem. Centrbl., 1899, **70**, II. 676-677.

1896: 518. Г. П. Черникъ. "Кое-что относительно состава и природы одного церитоваго минерала изъ Батумской области."
(Sur un mineral ceritique du district de Batoum par M. G. Tchernik.)

Журналъ Русскаго Физико-Химическаго Общества при Императорскомъ С.-Петербургскомъ Университетѣ.

(Journal de la société physico-chimique russe à l'Université de St.-Pétersbourg), 1896, **28**, 221-222.

AUTHOR INDEX.

Abney. See Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts; also Roscoe, Watts, Lockyer, Dewar, Liveing, Schuster, Hartley, Gibbs, and Abney
Ackroyd, 1902: 1117
Afanassiew, 1900: 806
Alexander, 1902: 1071
Allen. See Rutherford and Allen
Aloy, 1902: 1089
Analyses of minerals, 1874: 170
Armstrong, 1902: 1045
Arppe, 1867: 134
Auer von Welsbach, 1887: 314; 1894: 397; 1898: 620; 1901: 960; 1901: 988

Bagard, 1901: 1002
Bahr, 1862: 105; 1863: 108; 1864: 118
Bailey, 1901: 1011.
Baker, 1889: 333
Bandsept, 1897: 564
Barrière, 1896: 474
Barrows, 1896: 507
Bary, 1898: 632
Baskerville, 1901: 882; 1901: 901; 1901: 902; 1901: 978
Baskerville and Lemly, 1902: 1080; 1902: 1081; 1902: 1102
Baur, 1900: 792; 1900: 813; 1901: 933; 1901: 947. See also Muthmann and Baur
Bayerlein, 1899: 723
Bayley, 1898: 643
Bazarow, 1887: 309. See also Addenda, 1887: 309
Becker, 1880: 214
Becquerel, 1899: 704; 1900: 852; 1901: 946; 1902: 1109
Béhal, 1902: 1042
Behrendsen, 1899: 748
Behrens, 1891: 349; 1893: 389; 1894: 411; 1895: 451; 1895: 452; 1901: 975
Bell, 1900: 860
Bémont. See Curie, Curie and Bémont
Benedicks. See Von Schéele and Benedicks
Benz, 1902: 1027
Bergemann, 1851: 76; 1851: 77; 1852: 84; 1862: 102
Berlin, 1852: 83; 1852: 85; 1853: 88; 1862: 102. See also Damour and Berlin
Bernhardi, 1817: 4
Berzelius, 1818: 5; 1821: 6; 1821: 7; 1823: 8; 1825: 9; 1828: 12; 1829: 13; 1829: 14; 1829: 15; 1829: 17; 1829: 18; 1830: 20; 1830: 21; 1830: 22; 1831: 23; 1832: 24; 1832: 25; 1832: 26; 1832: 27; 1833: 30; 1833: 31; 1834: 32; 1835: 33; 1835: 34; 1836: 35; 1837: 36; 1838: 37; 1839: 39; 1840: 44; 1841: 48; 1842: 49; 1843: 52; 1844: 53; 1845: 58; 1846: 59; 1847: 66; 1848: 70; 1849: 72; 1849: 73; 1850: 74; 1862: 102. See also Gahn, Wallmann, Eggertz and Berzelius
Besson, 1901: 917
Bettendorff, 1889: 332
Beudant, 1832: 28
Biltz, 1902: 1039; 1902: 1040
Binder, 1899: 695
Blomstrand, 1870: 148; 1878: 203; 1885: 283; 1887: 313; 1887–1888: 318; 1889: 336; 1890: 338; 1897: 562 (obituary notice)
Blondel, 1900: 858
Blum, 1869: 144
Bluman, 1901: 943
Boggild. See Flink, Boggild, and Winther
Boehm, 1901: 986
Böhm, 1902: 1028; 1902: 1054; 1902: 1102. See also Muthmann and Böhm
de Boisbaudran, 1882: 248; 1883: 261; 1884: 272; 1884: 274; 1885: 276
Bokorny, 1894: 404
Bolton, 1899: 764
Bose. See Nernst and Bose

Bose and Jüttner, 1900: 807
Bossner, 1892: 367
Böttinger, 1894: 398
Boudouard, 1897: 557; 1898: 591. See also Le Chatelier and Boudouard; also Schützenberger and Boudouard
Bowman, 1900: 811; 1900: 821
Boyesen. See Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
Brauner, 1881: 227; 1881: 234; 1881: 238; 1882: 236; 1882: 239; 1885: 277; 1889: 331; 1891: 358; 1895: 435; 1897: 548; 1897: 549; 1898: 602; 1898: 645; 1900: 814; 1901: 921; 1901: 944; 1901: 976; 1902: 1052, 1118.
Brauner and Watts, 1881: 228
Brauner and Pavlícek, 1902: 1079
Brögger, 1881: 224; 1883: 254; 1885: 281; 1887: 302; 1890: 339; 1897: 535
Brögger and Vogt, 1895: 430
Brooks. See Rutherford and Miss H. T. Brooks
Brundage, 1901: 981
Bruno, 1899: 702
Bryan, 1900: 819
Brylinski. See Scheurer and Brylinski
Bunsen, 1875: 177
Bunte, 1895: 441; 1896: 498; 1897; 527; 1897: 540; 1897: 540*a*; 1897: 583*d*; 1898: 608; 1898: 668; 1899: 669; 1899: 863; 1901: 987
Bunte and Eitner, 1899: 679
Burton. See McLennan and Burton

C. E. C., 1900: 832
C. E. G., 1898: 631
Campbell-Swinton, 1899: 738
Carlson, 1873: 160
Carnelley, 1879: 211; 1880: 212; 1884: 266; 1884: 267; 1884: 271; 1886: 296
Caro, 1901; 992
Caspari, 1901: 916
Castellani, 1901: 985 (book review)
Chandler, 1901: 959; 1901: 971
Chandler and Mason, 1896: 518*f*
Chapuy. See Le Chatelier and Chapuy
Chavastelon, 1900: 796
Checchi. See Tarugi and Checchi
Chemische Fabrik für Beleuchtungswesen, 1899: 703
Chenel. See Séquard, Douilhet, and Chenel
Chydenius, 1861: 101; 1863: 112; 1866: 127. See also Nordenskiöld and Chydenius
Clarke, 1873: 159; 1876: 182; 1876: 183; 1876: 184; 1880: 215; 1881: 233; 1882: 249; 1888: 315; 1891: 347; 1893: 371; 1894: 406; 1895: 425; 1895: 434; 1896: 486; 1896: 518*a*; 1897: 539; 1898: 622; 1899; 729; 1900: 776; 1902: 1032
Cleve, 1873: 163; 1874: 168; 1883: 264; 1884: 268; 1885: 275
Cleve, Astrid, 1902: 1094; 1902: 1110
Collie. See Ramsay and Collie; also Ramsay, Collie, and Travers
Collier, 1880: 221
Committee on Atomic Weight of Thorium, 1902: 1114
Committee on Indexing Chemical Literature, 1902: 1107
Coutts. See Rutherford, Coutts, Trotter, and McDonald
Crookes, 1881: 230; 1883: 263; 1883: 265; 1885: 284; 1887: 299; 1887: 301; 1889: 328; 1896: 475; 1898: 595; 1898: 635; 1899: 746; 1899: 755; 1900: 805; 1902: 1044
Curie, 1898: 613; 1899: 713; 1900: 818; 1902: 1041
Curie, P and Mme. S. Curie, 1898: 616; 1899: 710; 1900: 853; 1902: 1018; 1902: 1111
Curie, Curie and Bémont, 1898: 621
Curie and Debierne, 1901: 910
Curtius and Darapsky, 1900: 808
Czapski, 1901: 949

Dahll. See Forbes and Dahll
Dales. See Dennis and Dales
Damour, 1852: 81; 1852: 82; 1862: 102; 1863: 111; 1867: 135; 1878: 204
Damour and Berlin, 1852: 86
Damour and Descloiseaux, 1857: 91
Darapsky. See Curtius and Darapsky
Davidsohn, 1002: 1087
Dawson and Williams, 1899: 739; 1899: 753; 1900: 844
Day, 1896: 516
Debierne, 1900: 785; 1901: 910. See also Curie and Debierne

Deeley, 1893: 392; 1894: 394
Delafontaine, 1863: 109; 1863: 110; 1864: 115; 1877: 189; 1878: 199; 1878: 200; 1878: 206; 1878: 207; 1880: 216; 1896: 464; 1897: 530
Delaunay, 1896: 492; 1901: 1003
Délepine. See Matignon and Délepine
Demarçay, 1883: 253; 1890: 342
Dennis, 1896: 473
Dennis and Dales, 1902: 1026
Dennis and Kortright, 1894: 400
Dennis and Magie, 1894: 407
Derby, 1899: 763; 1900: 812; 1901; 924; 1902: 1122
Derôme, 1900: 826
Descloiseaux. See also Damour and Descloiseaux; also Hidden and Descloiseaux
Dewar. See Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts; also Roscoe, Watts, Lockyer, Dewar, Liveing, Schuster, Hartley, Gibbs, and Abney
Diergart, 1900: 820
Dixon, 1882: 250; 1888: 323
Dorn, 1900: 848
Douilhet. See Séquard, Douilhet, and Chenel
Dredge, 1887: 304
Drossbach, 1895: 458; 1895: 459; 1896: 484; 1896: 489; 1897: 537; 1897: 578; 1897: 580; 1898: 597; 1899: 732; 1901: 891; 1901: 904; 1901: 991; 1901: 1004; 1902: 1051; 1902: 1062: 1902: 1093
Du Bois, 1900: 831
Du Bois and Liebknecht, 1900: 779; 1900: 780; 1900: 782
Dulong, 1829: 18
Dunnington, 1882: 242

Eakins, 1885: 279; 1890: 343; 1891: 348
Eckstadt, 1901: 984
Edison, 1899: 687
Eggertz. See Gahn, Wallmann, Eggertz, and Berzelius
Eitner. See Bunte and Eitner
Elster and Geitel, 1898: 618; 1899: 758; 1901: 952; 1901: 963; 1902: 1037; 1902: 1097; 1902: 1108
Engler and Wöhler, 1902: 1022
Engström, 1877: 192
Ephraim, 1900: 838
Erdmann, 1899: 681; 1900: 825; 1900: 839; 1901: 918; 1902: 1053
Étard. See Moissan and Étard
Exner and Haschek, 1899: 721; 1900: 778; 1901: 973

Fändreich and Oechelhäuser, 1893: 388
Fehrle, 1901: 965
Flink, Boggild, and Winther, 1899: 761; 1899: 762
Florence, 1898: 614
Fock, 1900: 795
Fontaine, 1883: 252
Forbes, 1854: 89
Forbes and Dahll, 1855: 90
Formánek, 1900: 802; 1900: 803
Formenti and Levi, 1901: 937
Forsling, 1898: 655
Fournier, 1901: 950
Franklin Institute, 1900: 829
Fresenius, 1896: 490; 1899: 682; 1899: 709; 1899: 727
Fresenius and Hintz, 1896: 481
Friedenau-Moscheles, 1897: 566
Fronstein and Mai, 1897: 581
Fühse, 1897: 529
Furniss, 1899: 688; 1899: 693

Gade. See Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
Gahn, 1817: 1, 3
Gandourine, 1898: 649
Geitel, 1901: 964. See also Elster and Geitel
Geipel, 1902: 1121
Genth, 1889: 334; 1890: 345; 1891: 356
Genth and Kerr, 1885: 285
Gentsch, 1894: 412; 1895: 431; 1896: 517; 1901: 993
Gerber, 1881: 232; 1883: 262
Gibbs, 1893: 384. See also Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts; also Roscoe, Watts, Lockyer, Dewar, Liveing, Schuster, Hartley, Gibbs, and Abney
Gibson, 1898: 625
Giesel, 1900: 837; 1901: 940; 1902: 1038; 1902: 1085; 1902: 1095
Gladstone, 1896: 510

Gladstone and Hibbert, 1902 : 1103
Glaser, 1896 : 482 ; 1897 : 526 ; 1898 : 605
Glinzer, 1895 : 439
Gmelin-Kraut, 1874 : 171
Gray, 1895 : 422 ; 1895 : 429 ; 1895 : 438
Grier. See Rutherford and Grier
Guenther, 1902 : 1031
Guichard, 1899 : 747
Guillaume, 1899 : 726 ; 1901 : 931
Gundlich. See Lesinsky and Gundlich
Gütbier, 1902 : 1050

Haber, 1897 : 544
Haitinger, 1891 : 363
Halske. See Siemens and Halske
Haller, 1893 : 383
Hamilton, 1899 : 767
Harding, 1899 : 719
Harris, 1901 : 1000. See also Smith and Harris
Hart, 1891 : 350
Hartley, 1882 : 251 ; 1902 : 1112 ; 1902 : 1113 ; 1902 : 1116. See also Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts ; also Roscoe, Watts, Lockyer, Dewar, Liveing, Schuster, Hartley, Gibbs, and Abney
Haschek. See Exner and Haschek
Haushofer, 1883 : 260 ; 1885 : 286
Heenan. See Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
Heidepriem. See Hofmann and Heidepriem
Heighway, 1898 : 644 ; 1899 : 683
Hering, 1900 : 851
Hempel, 1901 : 928
Henning, 1901 : 995 ; 1902 : 1055
Hermann, 1844 : 54 ; 1844 : 56 ; 1846 : 60 ; 1847 : 64 ; 1847 : 65 ; 1850 : 75 ; 1858 : 93 ; 1858 : 94 ; 1864 : 117 ; 1865 : 123 ; 1865 : 124 ; 1866 : 125 ; 1866 : 126 ; 1866 : 128 ; 1866 : 130 ; 1866 : 131 ; 1868 : 136 ; 1868 : 138 ; 1869 : 139 ; 1869 : 145 ; 1870 : 146 ; 1871 : 156
Hermann, R., 1879 : 210 (obituary)
Herzfeld and Korn, 1901 : 894 (book review) ; 1901 : 895 (book review) ; 1901 : 896 (book review) ; 1901 : 929 (book review) ; 1901 : 982 (book review)
Hibbert. See Gladstone and Hibbert
Hidden, 1881 : 229 ; 1891 : 352 ; 1891 : 354. See also Judd and Hidden
Hidden and Descloiseaux, 1886 : 289
Hidden and Hillebrand, 1893 : 379 ; 1893 : 382
Hidden and Mackintosh, 1888 : 324 ; 1889 : 325 ; 1890 : 344 ; 1891 : 351 ; 1891 : 353 ; 1893 : 374
Hidden and Pratt, 1898 : 627
Hillebrand, 1888 : 320 ; 1889 : 326 ; 1890 : 340 ; 1890 : 341 ; 1891 : 364 ; 1893 : 380 ; 1893–1894 : 381 ; 1899 : 724 ; 1900 : 881 ; 1902 : 1019. See also Hidden and Hillebrand
Hillebrand and Melville, 1892 : 366
Hintz, 1898 : 599 ; 1898 : 666 ; 1899 : 736. See also Fresenius and Hintz
Hintz and Weber, 1897 : 520 ; 1897 : 524 ; 1898 : 589
Hiortdahl, 1865 : 122
Högbom, 1884, 269
Hofmann, 1899 : 760
Hoffman, 1900 : 823 ; 1901 : 925
Hofmann and Heidepriem, 1901 : 892
Hofmann, Korn, and Strauss, 1901 : 885
Hofmann and Prandtl, 1901 : 900
Hofmann and Strauss, 1900 : 801 ; 1901 : 884 ; 1901 : 886 ; 1901 : 887
Hofman and Wölfl, 1902 : 1082
Hofman and Zerban, 1902 : 1023
Hohmann, 1897 : 565
Holm, 1902 : 1086
Holmquist, 1893 : 385 ; 1897 : 550
Honig, 1898 : 656
Howe, 1899 : 696 ; 1900 : 816
Hussak and Prior, 1899 : 766

Incandescent Gas Light Co. *versus* The De Marc Incandescent Gas Light System (Limited) and Others, 1896 : 501
Incandescent Gas Light Co. *versus* The Meteor Incandescent Lighting Co., Limited, 1896 : 506
Ingalls, 1893 : 376
International Atomgewichts-Commission, 1902 : 1100
International Committee on Atomic Weights, 1901 : 1012
Isdahl. See Mason, De Kay, Warner, Robertson, O'Neil, Boyeson, Isdahl, Gade, Heenan, McDaniel, and Smith

J. R., 1898: 651
Jacoby. See Meyer and Jacoby
Jannasch, 1894: 399
Jannasch, Locke, and Lesinsky, 1894: 402
Jannasch and Locke, 1894: 409
Jefferson, 1901: 942
Jimbo, 1901: 907
Job, 1899: 705; 1900: 773
Johnson, 1889: 335
Joly, 1896: 515
Joule. See Playfair and Joule
Judd and Hidden, 1899: 718
Jüttner. See Bose and Jüttner

Kauffmann, 1899: 742
De Kay. See Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
Keller, 1894: 408
Kemper, 1897: 567
Kerr. See Genth and Kerr
Kersten, 1839: 41
Killing, 1896: 508; 1897: 579; 1899: 697; 1899: 698; 1902: 1070
Khrushchov, 1894: 396
Klason, 1897: 572
Klüss, 1888: 319
Knöffler, 1901: 1005
Knop, 1871: 153; 1871: 155; 1875: 175; 1877: 193
Knowlton. See Lindgren and Knowlton
von Knorre, 1896: 500; 1896: 505; 1897: 552; 1900: 783
Köenig, 1882: 241
Koenigsberger, 1898: 615
Kohlschütter, 1901: 903
Kolb, 1902: 1048
Koppel, 1901: 941 (review of book); 1901: 996 (review of book); 1901, 1015 (review of book)
Korn. See Herzfeld and Korn; also Hofmann, Korn, and Strauss
Kortright. See Dennis and Kortright
Kosmann, 1896: 499
Köthner, 1900: 841; 1902: 1069
Krantz, 1851: 78
Kraus, 1901: 908
Kraus and Reitinger, 1901: 926
Krebs, 1897: 575; 1897: 583*c*
Kropotkin (Prince), 1908: 854
Krüss and Nilson, 1887: 305; 1887: 306; 1887: 307; 1887: 308; 1891: 362; 1894: 401; 1897: 536; 1899: 699
Krüss and Palmaer, 1897: 547
Krüss and Volk, 1893: 372
Küster, 1901: 899

Ladureau, 1900: 822
Lamotte, 1898: 629
Landolt, Ostwald, Seubert, 1898: 623
Langlet, 1895: 426
Larsson, 1896: 472
Lea, 1895: 444; 1896: 518*c*; 1896: 518*d*;
Le Conte, 1847: 67
Le Chatelier and Boudouard, 1898: 600
Le Chatelier and Chapuy, 1898: 637
Lemly. See Baskerville and Lemly
von Lengyel, 1900: 788
Lenher, 1899: 692; 1900: 835; 1901: 999; 1901: 1008
Lesinsky. See Jannasch, Locke, and Lesinsky
Lesinsky and Gundlich, 1897: 538.
Levi. See Formenti and Levi
Lewes, 1896: 502; 1897: 577; 1899: 715; 1899: 716; 1900: 873; 1900: 876; 1900: 878
Lichtmess-Kommission, 1901: 961
Liebenthal, 1900: 862; 1900: 864; 1900: 867; 1900: 868
Liebknecht. See Wills and Liebknecht; also Du Bois and Liebknecht
Lillard, 1896: 477
Lindgren, 1897: 531
Lindgren and Knowlton, 1896: 460
Lindstrom, 1881: 231
Ling, 1895: 432
Liveing. See Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts; also Roscoe, Watts, Lockyer, Dewar, Liveing, Schuster, Hartley, Gibbs, and Abney
Locke, 1894: 403. See also Jannasch and Locke; also Jannasch, Locke, Lesinsky
Lockyer, 1896: 509. See also Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts; also Roscoe, Watts, Lockyer, Dewar, Liveing, Schuster, Hartley, Gibbs, and Abney
Loew, 1897: 563

Lohse, 1897: 582
Lorenz, 1896: 518b
Lorenzen, 1881: 223
Love, 1900: 830
Ludwig, 1871: 154
Lange, 1894: 414
Lux, 1897: 576

MacKean, 1891: 360
Madan. See McLeod, Roberts-Austen, Madan and Nagel
Mackintosh, 1893: 374. See also Hidden and Mackintosh
Magie. See Dennis and Magie
Mai. See Fromstein and Mai
Mallet, 1893: 370; 1901: 980
Maratta, 1897: 555
Marc, 1902: 1059; 1902: 1106
De Marc Incandescent Gas Light System. See The Incandescent Gas Light Co. *versus* The De Marc Incandescent Gas Light System (Limited) and Others
Marckwald. See Meyer and Marckwald
Marignac, 1867: 132
Marshall, 1902: 1088
Marsy (De), 1900: 836
Martin, 1901: 954; 1902: 1092
Mason, 1895: 447; 1896: 461; 1899: 678; 1901: 1007. See also Chandler and Mason; also Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith, 1895: 449
Matignon, 1900: 799; 1900: 800; 1900: 804
Matignon and Délepine, 1901: 889
Matthews, 1898: 609; 1898: 610; 1898: 611; 1898: 612; 1898: 641; 1899: 722
Mauzelius, 1900: 794
McDaniel. See Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
McDonald. See Rutherford, Coutts, Trotter, and McDonald
McClung. See Rutherford and McClung
McLennan, 1902: 1065; 1902: 1120
McLennan and Burton, 1902: 1119
McLeod, Roberts-Austen, Madan, and Nagel, 1901: 915
Melville. See Hillebrand and Melville
Mendeléeff, 1889: 330; 1897, 568
Mendelejeew, 1880: 220
Mendelejeff, 1871: 152; 1874: 169
Mendelejew, 1870: 151
Mendelyeev, 1869: 143; 1870: 149: 1873: 161; 1881: 222. See also Addenda, 1869: 143; 1871: 149; 1873: 161; 1881: 222
Merrill, 1899: 694
Merle, 1897: 534
Meteor Incandescent Lighting Co., Limited. See The Incandescent Gas Light Co. *versus* The Meteor Incandescent Lighting Co., Limited
Metzger, 1902: 1024; 1902: 1025
Meyer, L., 1870: 147; 1880: 219; 1888: 322; 1895: 450
Meyer, S., 1899: 708; 1899: 712; 1901: 972
Meyer, R. J., 1901: 895
Meyer and Jacoby, 1900: 789; 1901: 909; 1901: 934
Meyer and Marckwald, 1900: 791
Meyer and Schweidler, 1899: 749; 1900: 845
Meyer and Seubert, 1883: 258; 1885: 287
Mezger, 1895: 454
Mie, 1900: 856
Miers, 1901: 905
Mills, 1884: 270; 1886: 297
Moberg, 1898: 601
Moissan, 1896: 479; 1896: 480; 1896: 491; 1897: 543; 1902: 1017
Moissan and Étard, 1896: 471; 1897: 541
Möller, 1861: 100
Moraht, 1895: 445
Moscheles-Friedenau, 1897: 566
Moul, 1898: 626
Müller, 1900: 843
Muthmann, 1898: 593
Muthmann and Baur, 1900: 787; 1900: 790
Muthmann and Böhm, 1900: 777
Muthmann and Rolig, 1898: 590; 1898: 594

Nagel. See McLeod, Roberts-Austen, Madan, and Nagel
Naumann, 1898: 667
Nernst, 1899: 734
Nernst and Bose, 1900: 809
Nernst and Wild, 1900: 817
Newlands, 1863: 113; 1864: 114; 1865: 120; 1865: 121; 1866: 129
Nicklès, 1863: 106
Nilson, 1874: 173; 1874: 174; 1875: 178; 1876: 179; 1876: 180; 1876: 181; 1879: 208; 1880: 213; 1880: 218; 1882: 245; 1882: 246; 1882: 247; 1883: 255; 1887: 305; 1887: 306; 1887: 307; 1887: 308; 1887: 310; 1. See also Addenda, 1875: 178; also Krüss and Nilson
Nilson and Petterson, 1880: 218; 1887 310
Nitze, 1895: 443
Noelting, 1902: 1057
Notes and Editorial Notices, 1817: 2; 1829: 16; 1829: 19; 1847-'48: 68; 1869: 140; 1874-75: 172; 1883: 257; 1886: 295; 1888: 317; 1889: 329; 1891: 355; 1893: 368; 1893: 369; 1893: 377; 1893: 393; 1894: 413; 1894: 415; 1894: 416; 1895: 424; 1895: 428; 1895: 436; 1895: 442; 1895: 446; 1896: 463; 1896: 468; 1896: 469; 1896: 487; 1896: 495; 1896: 496; 1896: 503; 1896: 504; 1896: 513; 1896: 514; 1896: 518*g*; 1897: 519; 1897: 521; 1897: 522; 1897: 523; 1897: 559; 1897: 569; 1897: 570; 1897: 571; 1897: 573; 1897: 574; 1897: 583*b*; 1898: 598; 1898: 617; 1898: 624; 1898: 628; 1898: 630; 1898: 639; 1898: 640; 1898: 642; 1898: 650; 1898: 654; 1898: 657; 1898: 658; 1898: 659; 1898: 660; 1898: 662; 1898: 663; 1898: 664; 1898: 665; 1899: 670; 1899: 671; 1899: 672; 1899: 675; 1899: 677; 1899: 680; 1899: 684; 1899: 685; 1899: 686; 1899: 689; 1899: 690; 1899: 691; 1899: 706; 1899: 707; 1899: 714; 1899: 717; 1899: 720; 1899: 730; 1899: 731; 1899: 740; 1899: 744; 1899: 745; 1899: 750; 1899: 751; 1899: 757; 1900: 815; 1900: 827; 1900: 833; 1900: 840; 1900: 847; 1900: 849; 1900: 855; 1900: 861; 1900: 869; 1900: 870; 1900: 872; 1900: 874; 1900: 875; 1900: 879; 1901: 911; 1901: 912; 1901: 913; 1901: 920; 1901: 948; 1901: 956; 1901: 962; 1901: 970; 1901: 979; 1901: 983; 1901: 990; 1901: 994; 1901: 1006; 1901: 1009; 1902: 1020; 1902: 1034
Nordenskiöld, 1842: 50; 1861: 99; 1863: 107; 1870: 150; 1877: 188; 1878: 202; 1884: 273; 1887: 298; 1887: 311; 1891: 359; 1893: 386; 1895: 427; 1900: 770
Nordenskiöld and Chydenius, 1860: 96
Norton, 1901: 923; 1901: 953
Nylander, 1864: 116

Oechelhäuser. See Fändreich and Oechelhäuser
Odling, 1857, 92
O'Neil. See Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
Ostwald. See Landolt, Ostwald, Seubert
Ouvrard. See Troost and Ouvrard
Owens, 1899: 728. See also Rutherford and Owens

Paijkull, 1877: 194
Palmer, 1895: 419
Palmaer. See Krüss and Palmaer
Pavlicek. See Brauner and Pavlicek
Pegram, 1901: 927; 1901: 932
Penfield, 1882: 244
Penfield and Sperry, 1888: 316
De Perrodil, 1898: 653
Petersson, 1888: 321; 1890: 337
Petterson, 1873: 162; 1896: 465; 1900: 774. See also Nilson and Petterson
Pfeiffer, 1902: 1084
Phipson, 1896: 478; 1896: 493
Pierron: 1900: 850
Pissarjewsky, 1900: 793; 1900: 797; 1902: 1046; 1902: 1056
Playfair and Joule, 1846: 62
Polis, 1893: 375
Popp, 1864: 119
Possetto, 1898: 587
Power and Shedden, 1900: 772
Prandtl. See Hofmann and Prandtl
Pratt. See Hidden and Pratt

Preis, 1897: 560
Preyer, 1896: 511
Prior, 1892–1894: 365; 1896: 497; 1899: 737. See also Hussak and Prior

Radominski, 1873: 164; 1874: 165, 166
Rammelsberg, 1860: 98; 1869: 141; 1869: 142; 1871: 157; 1872: 158; 1876: 185; 1877: 186; 1877: 187; 1881: 226; 1885: 280; 1886: 290; 1886: 293; 1895: 456; 1895: 457
Ramsay, 1895: 440; 1898: 652; 1901: 977
Ramsay and Collie, 1896: 466
Ramsay, Collie, and Travers, 1895: 453
Ramsay and Zilliacus, 1897: 561
Rasch, 1900: 846; 1901: 1013
Readwin, 1877: 190
Redner, 1901: 989
Reitinger. See Kraus and Reitinger
Renard, 1881: 225
Retgers, 1896: 512
Reynolds, 1902: 1066
Richards, 1893: 387; 1898: 592; 1899: 733; 1899: 741; 1900: 834; 1901: 1008; 1902: 1043
Roberts-Austen. See McLeod, Roberts-Austen, Madan, and Nagel
Robertson. See Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
Roelig, 1898: 638
Rogers, 1901: 955
Rolig. See Muthmann and Rolig
Roscoe, 1882: 240
Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts, 1886: 294; 1900: 824
Roscoe, Watts, Lockyer, Dewar, Liveing, Schuster, Hartley, Gibbs, and Abney, 1902: 1116
Rose, G., 1839: 38; 1839: 40; 1840: 45; 1842: 51
Rose, H., 1827: 11; 1839: 43; 1844: 55; 1851: 79; 1852: 80; 1853: 87; 1862: 103; 1862: 104
Rosenheim and Schilling, 1900: 784
Roozeboom, 1890: 346
Russell. See White and Russell; also White, Russell, and Traver
Rutherford, 1900: 768; 1900: 769; 1900: 880; 1901: 914; 1901: 930; 1901: 951: 1901: 966; 1902: 1036; 1902: 1061; 1902: 1068; 1902: 1115
Rutherford and Allen, 1901: 967; 1901: 1016; 1902: 1123
Rutherford and Miss H. T. Brooks, 1902: 1063; 1902: 1078
Rutherford, Coutts, Trotter, and McDonald, 1899: 725
Rutherford and Grier, 1902: 1090; 1902: 1091; 1902: 1096
Rutherford and McClung, 1901: 883
Rutherford and Owens, 1899: 752
Rutherford and Soddy, 1902: 1021; 1902: 1029; 1902: 1072; 1902: 1073; 1902: 1074; 1902: 1076; 1902: 1104; 1902: 1105
Rutten, 1902: 1083
Rydberg, 1897: 554; 1900: 771

Sachs, 1901: 906
Salomons, 1898: 661
Salomon, 1900: 877
Salzenberg, 1900: 866
Samtleben, 1900: 810
Samter, 1901: 997
Sartori, 1901: 939
Scheerer, 1840: 47; 1845: 57; 1859: 95; 1860: 97
Scheibe, 1899: 756
Scheurer and Brylinski, 1897: 545; 1898: 646; 1898: 647; 1898: 648
Schilling, 1901: 998; 1902: 1049; 1902: 1098. See also Rosenheim and Schilling.
Schirmeisen, 1900: 798
Schmelck, 1895: 420
Schmidt, 1893: 391; 1898: 596; 1898: 606; 1898: 607
Schneider, 1895: 417
Schoonjans, 1900: 857
Schüler, 1899: 701
Schuster. See Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts; also Roscoe, Watts, Lockyer, Dewar, Liveing, Schuster, Hartley, Gibbs, and Abney
Schützenberger and Boudouard, 1897: 532; 1897: 533
Schweidler. See Meyer and Schweidler

Sepulchre, 1893: 390
Secretary of the Chemische Gesellschaft zu Stockholm, Sept. 21, 1899, 1899: 700
Séquard, Douilhet, et Chenel, 1900: 842
Seubert. See Meyer and Seubert; also Landolt, Ostwald, and Seubert
Shapleigh, 1897: 553
Shedden. See Power and Shedden
Shepard, 1840: 46
Siemens and Halske, 1900: 828; 1902: 1058
Smith, 1877: 191; 1877: 195; 1877: 196; 1878: 197; 1878: 198; 1878: 205; 1883: 259; 1896: 518*e*; 1901: 919. See also Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
Smith and Harris, 1895: 421
Soddy, 1902: 1030; 1902: 1075; 1902: 1077. See also Rutherford and Soddy
Söderbaum, 1885: 288
Söhren, 1896: 483; 1896: 485
Soret, 1878: 201; 1879: 209; 1880: 217
Sperry. See Penfield and Sperry
Staigmüller, 1902: 1099
Steele, 1901: 922
Sterba, 1901: 936
Stevens, 1901: 893; 1902: 1047
Stewart, 1900: 871
St. John, 1895: 418
Stoney, 1902: 1067
Straubel. See Winkelmann and Straubel
Strauss. See Hofmann and Strauss; also Hofmann, Korn, and Strauss
Suess, 1901: 957
Swinburne, 1899: 673; 1899: 674

Tarugi and Checchi, 1901: 969
Tassin, 1897: 583
Thalén, 1868: 137
Theel. See Witt and Theel
Thesen, 1895: 423
Thiele, 1900: 781
Thomson, 1902: 1060
Thorpe, 1895: 437
Topsöe, 1874: 167
Townes, 1895: 448
Traube, 1901: 968
Traver. See White and Traver; also White, Russell, and Traver
Travers. See Ramsay and Travers; also Ramsay, Collie, and Travers
Troost, 1885: 278; 1885: 282; 1893: 373; 1893: 378
Troost and Ouvrard, 1886: 292; 1887: 300; 1887: 312; 1889: 327
Trotter. See Rutherford, Coutts, Trotter, and McDonald
Truchôt, 1898: 588; 1898: 633; 1899: 743
Tschernik, 1896: 462; 1896: 518. See also Addenda, 1896: 462; 1896: 518

Urbain, 1896: 470; 1897: 551; 1900: 775
Urbain, G. and E., 1901: 888

Van der Plaats, 1866: 291
Verneuil. See Wyrouboff and Verneuil
Vincent, 1902: 1064
Voelker, 1898: 604
Von Schéele and Benedicks, 1901: 894
Vogt, 1895: 433; 1898: 603; 1899: 754. See also Brögger and Vogt
Volck, 1894: 405
Volk. See Krüss and Volk

Waegner, 1902: 1101
Walker, 1891: 361
Wallmann, 1817: 1. See also Gahn, Wallmann, Eggertz, and Berzelius
Wallroth, 1883: 256
Warner. See Mason, De Kay, Warner, Robertson, O'Neil, Boyesen, Isdahl, Gade, Heenan, McDaniel, and Smith
Watt, 1881: 235
Watts, 1881: 228. See Brauner and Watts
Watts, H., 1894: 395
Watts, M. See Roscoe, Lockyer, Dewar, Gibbs, Liveing, Schuster, Hartley, Abney, and Watts
Weber. See Hintz and Weber
Websky, 1867: 133
Weibull, 1881–1882: 237
Weibye, 1848: 69
Weiss, 1901: 1010
Wells, 1901: 1001
Wells and Willis, 1901: 945

von Welsbach. See Auer von Welsbach
Wenghöffer, 1897: 528
Westphal, 1895: 455
White and Russell, 1901: 958
White, Russell, and Traver, 1902: 1033
White and Traver, 1902: 1035
Whitney, 1849: 71
Wiechmann, 1899: 676
Wiik, 1875: 176
Wild. See Nernst and Wild
Willgerodt, 1887: 303
Williams. See Dawson and Williams
Willis. See Wells and Willis
Wills and Liebknecht, 1899: 765
Winkelmann and Straubel, 1896: 488
Winkler, 1891: 357; 1897: 583*a*; 1898: 636; 1899: 759
Winther. See Flink, Boggild, and Winther
Wislicenus, 1896: 494
Witt, 1894: 410; 1896: 467; 1897: 525; 1901: 896; 1901: 996
Witt and Theel, 1900: 786
Wöhler, 1826: 10; 1833: 29; 1839: 42; 1846: 61; 1847: 63
Wöhler. See Engler and Wöhler
Woitschach, 1882: 243
Wölfl. See Hofmann and Wölfl
Wyrouboff, 1896: 476; 1898: 634; 1901: 890; 1901: 897; 1901: 898; 1901: 935; 1901: 938; 1901: 974; 1901: 1014
Wyrouboff and Verneuil, 1897: 542; 1897: 546; 1897: 556; 1897: 558; 1898: 584; 1898: 585; 1898: 586; 1898: 619; 1899: 711; 1899: 735; 1900: 859

Zerban. See Hofman and Zerban
Zilliacus. See Ramsay and Zilliacus

SMITHSONIAN MISCELLANEOUS COLLECTIONS

PART OF VOLUME XLIV

Stanford University Library
JUL 21 1904

PHYLOGENY OF FUSUS
AND ITS ALLIES

BY

AMADEUS W. GRABAU

(No. 1417)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
1904

SMITHSONIAN MISCELLANEOUS COLLECTIONS

PART OF VOLUME XLVI

PHYLOGENY OF FUSUS

AND ITS ALLIES

BY

AMADEUS W. GRABAU

(No. 1417)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
1904

which all the members (species and varieties) are descended from each other or from a common ancestor within the genus. From a study of the Fusidæ it appears that the early stages of the shell, *i. e.*, the protoconch and nepionic stages of the conch, are of the greatest importance in this group, as giving evidences of genetic relationship. Parallelism constantly crops out in gastropods, where it appears to be more frequent than in any other group of mollusks. But parallelism is no guide to affinity, and hence grave mistakes in classification are made, unless this fact is borne in mind. Parallelism is much more patent in the later stages of development than in the earlier ones, although it is by no means unknown in these latter.

Two species of gastropods in which the adult characters are similar, but the early characters dissimilar, are undoubtedly less closely related than species in which the early stages are similar or identical, and the later stages diverse. A good example of this is found in the so-called species of *Fusus* which are found in the Eocene deposits of the Gulf states. These appear to be typical Fusi as far as the adult form is concerned. Even the early stages (*i. e.*, the nepionic and neanic) are in some cases not unlike those of true Fusi. But the protoconch in one group is like that of *Levifusus* or *Pleurotoma* (*Falsifusus*), and in another group it is like that of *Fulgur*, the nepionic stages in this latter case also being Fulguroid (*Fulgurofusus*). It is obvious that, in spite of the similarity of adult characteristics, these species can not be referred to *Fusus*, since the protoconch indicates that they belong to distinct phyletic series, which are more closely related to other genera than they are to *Fusus* (see pl. XVII, figs. 5–9, pl. XVIII, fig. 1).

One of the most striking examples of error in classification from want of consideration of the early stages of development is found in the recent genus *Cyrtulus*, which by all later authors is united with the Eocene genus *Clavilithes*, *Cyrtulus* being made a synonym. The adult features of the only known species of *Cyrtulus* are almost precisely like those of *Clavilithes parisiensis* (Mayer-Eymer), the type of the genus *Clavilithes*. This is due to the fact that both species belong to phylogerontic series in which gerontism is expressed in the manner most characteristic of gastropods; namely, in the loss of ornamentation as well as the loss of the characteristic form, the successive whorls becoming wrapped about the preceding one in such a manner as to obliterate the original outlines, except those of the spire (see figs. 13 and 14, p. 97). This is a manner of growth eminently characteristic of *Melongena*, and it may well be denominated a Melongenoid type of growth. Such a manner of growth appears in the terminal members of a great many phyletic series of gastropods, and the uniting of all such phylogerontic terminals into a single genus or even family, as is often done, is an ignoring of the principles of genetic classification. Such fusion of terminals of distinct phyletic branches is responsible for the fact that our largest genera, such as *Fusus, Murex, Pleurotoma* and others are overrun with species of wholly foreign ancestry.

It must, however, be emphasized that the protoconch is not to be alone relied upon for the determination of generic boundaries. A gastropod shell with a Fusoid protoconch is not necessarily a *Fusus,* for it may have passed beyond the *Fusus* stage, as in *Cyrtulus,* or be a lateral branch, as in *Aptyxis, Rhopalithes,* or *Hemifusus.* The form and other characters of the adult shell must not differ too widely from those of typical Fusi. An example of similarity of protoconch and early whorls between two distinct, though perhaps related, genera, which is to be explained as a case of parallelism, is found in *Clavilithes,* and certain species of *Turbinella* of the American Eocene, as noted below.

No principles have thrown such light on the relationship of members within a phyletic group, and on the method of their development, as the law of acceleration annunciated by Hyatt and Cope, and the complementary law of retardation of Cope. By an application of these laws to genetic classification, many complex problems are solved, and light is thrown on the relations of the varieties and species to each other, and their position in the phyletic series.

Modification through acceleration in development may be considered as acting in two ways: first, by condensation, and, second, by elimination of stages. Condensation of stages usually precedes elimination of stages; the stage in question occupying less and less space in the development of the individual and finally disappearing altogether. Elimination may, however, occur without previous condensation; such abrupt dropping of stages indicating a high degree of acceleration. All stages may be equally condensed or some may suffer condensation more than others. Again, condensation may affect only certain structural characters of the shell, while others suffer little or no condensation. Thus in certain species of *Clavilithes* the shelfless suture is condensed, making room for the characteristic shelf, while some of the other characters, such as the round whorl and spirals, still persist. In other words, some of the later acquired, more specialized characteristics are pushed back into earlier stages, occurring side by side with characters of a more primitive type.

The protoconch stage in the Fusidæ appears to be the least affected of all the stages by the modifying forces. Condensation appears to a less extent in this stage than in any other. In fact, in some of the specialized Fusidæ an elongation of the protoconch is a marked feature. On the other hand, the protoconch of *Fusus* is generally ornamented by characters which in a more primitive type are found only in the conch. Thus acceleration is indicated in the protoconch of the Fusidæ by a pushing back and appearance upon its whorls of features normally characteristic of the earliest or nepionic stage of the conch.

The degree of acceleration is indicated in the successive members of a group, by the age at which distinctive features appear or disappear. Such features are of different types in different groups, but they may be classed under form and ornamentation of the whorls. In general, the more accelerated a fusoid shell is, the earlier the change from rounded to angular whorls is accomplished, and the sooner intercalated spirals make their appearance. This is progressive acceleration. In regressive types, acceleration is indicated by the early disappearance of ribs, of the peripheral angulation, and finally of the spirals.

The spirals or revolving striæ are of especial significance, as indicative of the degree of acceleration which the individual has attained. They may be divided into two groups, primary and post-primary. The first group makes its appearance more or less abruptly, especially in *Fusus,* where three or four spirals suddenly appear at the beginning of the nepionic stage. In other gastropods, these spirals may begin as a single one, increasing by the appearance of new ones on either side. This method of increase may be designated as exogenous, the new spirals appearing *outside* of the older ones; that is, between the sutures and the spiral next to it.* The second group has an endogenous manner of growth, the new spirals always becoming intercalated *between* the older ones. Secondary spirals appear between the primary ones, and tertiary between the primary and secondary. Sometimes spirals of a fourth or fifth and even of a higher cycle appear. From the method of appearance in the individual shell we can formulate the general law that species of a group in which primary spirals alone exist, are more primitive than those in which spirals of a higher cycle occur; and that in general, the higher the cycle of intercalated spirals, the more specialized or accelerated has the individual become.

Another feature by which we can measure the degree of acceleration is the posterior canal, and the accompanying subsutural band or, in some cases, the sutural shelf or terrace. The posterior canal is of the nature of a notch, at the point where the outer lip joins the body-whorl. This notch, weakly or not at all developed in the adult of primitive species, appears earlier and earlier in the successively accelerated types, and becomes more and more pronounced in the adult.

---

* It must be borne in mind that only below the upper suture on any whorl can we see the true edge of the shell, except on the body whorl. New spirals will therefore be seen next to the upper suture only, as we trace their development in an adult shell, while the new spirals which appear on the lower border of the whorl —*i. e.,* what was once the spindle of the body-whorl—are covered up by the succeeding whorls except in the case of the very last one.

In extremely accelerated or specialized types, such as *Clavilithes* and *Cyrtulus,* the posterior canal is so strong and broad that instead of the simple revolving subsutural band, which marks its existence in the whorls of more primitive species, a broad and pronounced sutural shelf appears. In certain gastropods, though rarely, if ever, in *Fusus,* the posterior canal becomes separated from the body-whorl, which results in the formation of a pronounced sutural canal like that of *Sycotypus canaliculatus* and other species.

The long anterior canal of the Fusidæ which is the continuation of the aperture into the spindle and the columellar portion of the spindle are usually of a fairly constant type in this group, the modifications being mainly in the length and the relative slenderness as well as in the straightness of this portion of the shell. Spirals of several cycles are almost always found on the spindle. In some phylogerontic types, and in certain old-age individuals, the inner lip becomes separated from the columella of the spindle and a slit-like umbilication is produced.

The Fusidæ as a group are highly accelerated, and near the acme of development. Primitive types are uncommon, except in the Eocene, and even there regressive species appear. The majority of species have attained the acme of development for the group, many of them reaching it while still young. This group is therefore uncommonly well supplied with phylogerontic types, and there is scarcely a specific or varietal series which does not have its degraded forms. *Fusus colus,* the type of the genus, is itself a regressively accelerated type, in which the characteristic acmatic features have nearly disappeared in the adult. Excessive degradational acceleration is seen in *Cyrtulus, Clavilithes* and similar genera.

In the present paper, the following genera of Fusoid shells are described: *Fusus, Aptyxis, Falsifusus, Fulgurofusus, Heilprinia, Euthriofusus, Cyrtulus, Clavellofusus, Clavilithes, Rhopalithes,* and *Cosmolithes.* I have studied all available species of these genera and I believe that with few exceptions they have been referred to their approximate positions in their respective phyletic series. Of the above genera, *Fusus* and *Clavilithes* are the only ones generally recognized, the species of the others being referred to one or the other of these two, or to Fasciolaria. *Cyrtulus* and *Aptyxis* have been restored to their original generic rank. *Euthriofusus* has recently been proposed by Cossman for *Fusus burdigalensis.* The other genera are new. Of the numerous species generally referred to *Fusus,* considerably less than one third actually belong to that genus, and most of these are described below. Other species, of which good illustrations have been published, are also noted, while a number of other species not here included, will on close study undoubtedly prove congeneric with *Fusus*. No new genera are here proposed for species eliminated from *Fusus*, with few exceptions, though this will be necessary for a large proportion of them.

No researches in the phylogeny of invertebrates, as revealed by the hard parts, can be carried on at the present time without a recognition of the monumental work accomplished in this department by the late lamented Professor Alpheus Hyatt. His researches have paved the way for future investigators, and none can work in this field without acknowledging themselves his pupils. The writer has had the great good fortune to carry on a part of his investigations under circumstances which admitted of ready discussion, with Professor Hyatt, of many important points, and the cordial interest and attention which Professor Hyatt gave to this work are among the many pleasant memories associated with that best of teachers and friends. In Professor R. T. Jackson, of Harvard University, the writer has had a constant adviser, critic, and helpful sympathizer, and his invaluable aid in these directions are gladly and freely acknowledged. The writer is also indebted to Professor Jackson for assistance in the supply of material for study, as well as for many other courtesies.

The work, begun in 1898, was carried on in the Palæontological laboratory of Harvard University, and in various museums. Foremost among the latter is the Museum of Comparative Zoölogy at Cambridge, Mass.* The writer is greatly indebted to Dr. W. M. McWoodworth, assistant in charge of the Museum, for permission to study the fine series of Tertiary Fusidæ especially from European localities, which are contained in that museum, and which in extent and importance are second to none in this country. To Dr. Walter Faxon, curator of the department of recent mollusca, in the same museum, thanks and acknowledgements are due, for opportunity to study the extensive series of recent Fusidæ under his charge, as well as for many courtesies shown during the prosecution of the studies. The use of the collection of the Boston Society of Natural History† was granted by Professor Hyatt the curator. The writed spent two weeks in Washington, studying the collections at the Smithsonian Institution, and he wishes to make grateful acknowledgements of the numerous kindnesses shown him by Dr. W. H. Dall, the curator of the department of molluscs, and by the members of his staff. From Mr. Chas. T. Simpson and Dr. T. W. Vaughan the writer received many courtesies and much assistance. Through the kindness of Dr. Dall we have been enabled to figure the protoconchs of *Falsifusus meyeri* and *Heilprinia caloosaensis*.

At the Johns Hopkins University in Baltimore, the writer was given the opportunity to examine the Tertiary Fusoid shells in the collection of that institution, and to Professor W. B. Clark and Dr. George C. Martin acknowledgments are hereby made.

---

* Referred to as M. C. Z. in citation of localities, etc.

† Referred to as B. S. in the citation of localities, etc.

At Philadelphia the writer was granted every opportunity to study the extensive collections of recent and fossil Fusidæ at the Academy of Natural Sciences, and the Wagner Free Institute of Science. To the officers of these institutions, particularly to Professor H. A. Pillsbry, and to Dr. Chas. W. Johnson acknowledgments and thanks are herewith tendered. To the Academy we are also indebted for the loan of specimens from which many of the illustrations of plates XVII and XVIII are made. To the Wagner Free Institute we are indebted for the loan of the original drawings of figs. 11 and 12. The original drawings of figs. 4, 9, 10, and 17 were loaned by Professor G. D. Harris, of Cornell University. The free use of the collections of the American Museum of Natural History were granted by Professor R. P. Whitfield and Dr. L. P. Gratacap, curators respectively of palæontology and of recent mollusca, and to these gentlemen thanks are due. The collections of the palæontological department of Columbia University also contain a valuable series of recent and Tertiary Fusidæ. Other acknowledgements are due to the Buffalo Society of Natural Sciences, the Massachusetts Institute of Technology and to many friends for the loan of specimens. To Miss Elvira Wood, of Washington, formerly Instructor in Palæontology in the Massachusetts Institute of Technology, the writer is greatly indebted for the care and skillful labor she has bestowed on the difficult figures of the protoconchs and early conch stages shown in plates XVII and XVIII, as well as the original figures in the text.

DESCRIPTION OF GENERA AND SPECIES, WITH A DISCUSSION OF THEIR GENETIC RELATIONSHIPS.

A.

The Genus **FUSUS** Bruguiere.

The genus *Fusus* is credited by Fisher and Cossmann to Klein (1753); by Agassiz and Scudder to Bruguiere (1791), and by Tryon and others to Lamarck (1799). Chemnitz in 1780 and later applied the name to the description of his species without however characterizing it generically. Bruguiere in 1791, in the *Encyclopedie Methodique* described the genus, including in it those species of the Linnæan genus *Murex*, which have a fusoid form. Lamarck restricted the genus by retaining in it only those shells, which were characterized by a fusoid or spindle-shaped form, a long canal, an absence of varices, and an absence of columellar plaits. Schumacher in 1817 and Swainson in 1840 still further restricted the genus, the former naming as the type species, the *Murex colus* of Linné. Later authors have generally tended to greater restriction of the genus, by elimination of non-characteristic species, though some have attempted to extend again the meaning of the term.

In all the characterization of the genus, the form has been considered as of paramount importance. While it is true that no species which have not a true fusoid form can be relegated to this genus, it is also true that numerous species have a fusoid form which are not genetically related to *Fusus*, and hence can not be placed in that genus. The only true guide to relationship in this as in all cases, must be found in the development of the individual, *i. e.*, its ontogeny, and its relation to that of the members of its group, *i. e.*, its phyletic relation. For this purpose the earliest whorls and particularly the protoconch are of the greatest import, and no species which does not show a protoconch similar to that of *Fusus colus*, the type of the genus, can be relegated to *Fusus*. On the other hand, there are species of gastropods (*Hemifusus*, *Rhopalithes*, etc.) which have a *Fusus* protoconch, thus evidencing an unmistakable relationship to *Fusus*, but their form forbids that they be included under this genus. Thus the genus becomes still more restricted, and very many, perhaps most, of the species which Lamarck and some subsequent authors included in it must be removed to other genera.

The Protoconch of Fusus.

The protoconch of *Fusus* is distinctive, and has been observed in the following twenty-one recent and Tertiary species:

F. porrectus,
F. aciculatus,
F. acuminatus,
F. asper,
F. henekeni,
F. eucosmius,
F. turriculus,
F. colus,
F. tuberculatus,
F. distans,
F. closter,
F. dupetit-thouarsii,
F. irregularis,
F. ambustus,
F. novæ-hollandiæ,
F. longirostris,
F. marmoratus.
F. brasiliensis.
F. rostratus,
F. bredæ,
F. carinatus.

The protoconch is seldom preserved in recent shells. This is chiefly due to carelessness of collectors, who do not protect the apices of the shells properly, and to the deplorable habit which many collectors have of treating their shells with acids, thus destroying the finer characters of the apex. In spite of this unfavorable condition of most collections, the protoconch has been seen in so many individuals of the above-named species that no doubt exists in my mind of its relative constancy of form and characters.

The protoconch generally consists of one and a half volutions, but may be somewhat shorter or longer. No case has been observed in which the protoconch consists of as few as one volution, and only one

(*F. longirostris*) in which it consists of as many as two volutions.* The first whorl is smooth, obliquely erect, and rather prominent, the apical end convex and large. The diameter just below the apex is but slightly less than that at the end of the first volution. The enlargement of the remaining portion of the protoconch is also very slight, the shell thus having the appearance of having a swollen or apical whorl. The last half of the protoconch is marked by fine vertical riblets, which are either closely crowded or separated by interspaces having from two to three times the width of the riblets. In rare cases are the interspaces, and still more rarely the riblets marked by visible revolving lines or " spirals," though such lines of excessive tenuity and visible only in the young shell may be present.

The protoconch generally ends abruptly with a varyx, which sometimes is a riblet scarcely more prominent than the other riblets on the protoconch, or again is a strong rounded vertical ridge, two or three times the width of the normal riblets of the protoconch. The ornamentation of the nepionic shell begins abruptly, commonly in the form of spirals and rounded vertical ribs.

These peculiarities of the protoconch of *Fusus* stamp this genus as a remarkably accelerated type. Ordinarily in gastropods no ornamentation is shown on the protoconch, though *Fusus* is by no means the only one in which it occurs. Some of the other genera with ornamented protoconch will be mentioned below, but so far as my observations extend, the number of genera with such markedly differentiated protoconchs is comparatively few. In *Falsifusus* and in many species commonly referred to *Latirus, Pleurotomaria* and other related genera, the apical end is highly ornamented in the later stages, but this ornamented portion merges into what is clearly a portion of the shell itself. It is therefore somewhat doubtful whether the ornamented subapical whorls of these shells are a part of the protoconch or whether they represent a part of the nepionic shell. The same is true of other shells, in which the ornamented portion immediately succeeding the smooth portion may represent the nepionic shell instead of the protoconch. In *Fusus,* however, the protoconch ends abruptly, there being a sharp line of demarkation between the two, and the junction is furthermore accentuated by the development in most cases, of a distinct varix. Similar characteristics occur in *Hemifusus,* the ribbed portion of the protoconch being in this genus extended, so as to complete two volutions.†

---

* The term volution is employed throughout this paper to denote a complete revolution of the shell, the beginning and termination of the volution being in the same line, the one above the other. The term whorl is used in a less precise manner, being employed as it usually is in conchology.

† Grabau, Am. Nat., vol. XXXVI, p. 921, fig. 5.

We know so far of only a few genera which show greater acceleration in the protoconch than is shown by *Fusus*. One of these is the Fasciolarioid genus *Heilprinia,* of which *Fusus caloosænsis* Heilprin, is the type. In this the ornamentation extends to within a very short distance of the apex, which is minute. (Plate XVIII, fig. 5.) In this genus, however, no definite line is drawn between protoconch and conch. *Falsifusus* (?) *apicalis* has another remarkably accelerated protoconch which, unlike that of *Heilprinia,* terminates abruptly. The apex of this species, however, is smooth as in the typical members of the genus *Falsifusus* (see pl. XVIII, fig. 2).

THE CONCH OF FUSUS.

In all the normal species of *Fusus* the nepionic shell is at first round-whorled, round-ribbed, and furnished with simple uniform revolving striæ or spirals. In a few highly accelerated species, this type of nepionic whorl is crowded out, its place being taken by a later angular-whorled type. Nearly always, however, in such cases, the characteristic round whorl is indicated in that portion of the conch immediately succeeding the protoconch, even though it may, and often does comprise only the merest fraction of a volution.

The angulation of the whorls is brought about by the relative excessive growth of one or more of the central spirals of the whorls. At first the three central ones are about equally strong and they may retain this subequality for a number of volutions. Sometimes the lower spiral is covered by the upper edge of the succeeding volution, in which case the appearance of a bicarinate central portion is given. A true bicarination is due to the suppression of one of the three central spirals, in favor of the other two (*Fusus dupetit-thouarsii*). Eventually, however, in nearly all cases, the multicarinate aspect gives way to a unicarinate one, in which one spiral, usually the central one, becomes stronger than the others. In *Fusus toreumus,* and some other species, however, the multicarinate feature is retained in the adult. The ribs coincidently fade away towards the sutures; they remain strong only on the angulation where they commonly give rise to nodulations, which may be rounded or vertically flattened in various degrees, even to pointedness. This condition may continue to the end, or it may become further modified by the total disappearance of the ribs, and with them the nodules. Finally the angulation disappears, the whorl thus again becoming rounded, though now without ribs. The ribs occasionally reappear in the final stages. The spirals remain simple only in the most primitive species; in all others they are fortified by intercalations at a varying age, according to the species, of secondary spirals. Often tertiary and higher series occur. Occasionally in certain species a strong spiral may become reinforced, by the appearance of fine revolving lines on its side.

In all typical species the last whorl is abruptly contracted below, and continued in a long spindle which is excavated into a long and slender anterior canal, the forward prolongation of the aperture. The columellar lip is always smooth but liræ are common on the interior of the outer lip.

In old individuals, or phylogerontic species, a more or less strong posterior canal is formed, which is the result of the upreaching of the upper portion of the last whorl onto the preceding whorl. Externally this canal is indicated by a vertical, subsutural revolving band, the occurrence of which may generally be taken as an indication of acceleration in development.

The species of *Fusus* are generally but little colored, though the apical portion and the spindle are often uniformly brown. Dark chestnut-colored spots are frequently seen between the tubercles on the periphery of the volution, and these fade out upward and downward. A periostracum, with rather strong bristles at the intersection of spirals and growth lines, covers the shell when fresh.

Type: *Murex colus* Linné.

Range: Eocene to present.

Distribution: Nearly all tropical and subtropical seas.

1. EOCENE SPECIES OF FUSUS.

A. SPECIES OF THE LONDON AND HAMPSHIRE BASINS.

FUSUS PORRECTUS (Solander).

(Plate I, figs. 5, 11, 12.)

1766. *Murex porrectus* SOLANDER, Foss. Hants. (Brander), p. 21, pl. 11, fig. 36.

1818. *Fusus rugosus* SOWERBY (non Lamarck), Min. Conch., vol. III, pl. 274, figs. 8 and 9.

The original description and illustration of this species leaves some doubt as to the exact characters of the species, which can only be settled by reference to the type specimen. However, the shells here identified with this species have characters which separate them from the British representatives of *F. aciculatus*, its nearest allies.

The protoconch of this species is obliquely erect, with the apex invested by the second whorl (fig. 1). It is smooth for about a volution and a third, after which it is ornamented by rather distant smooth vertical riblets, which extend from suture to suture. The protoconch terminates abruptly after something over a volution and a half. The ribs and spirals of the conch appear as abruptly. The whorls are rounded and separated by deeply impressed sutures which give the whorls the appearance of resting loosely one upon the other. The ribs are rounded and strongly cancellated by the spirals, of which there are four or five at the beginning of the conch. This is the most primitive condition yet obtained in the conch of a true *Fusus*. In the succeeding stages of development, the shells of this species are scarcely modified. Several additional spirals appear between the upper suture and the spiral next to it. One of the central spirals is slightly strengthened in the adult stage is some specimens, suggesting a central carination. This incipient carination is scarcely noticeable in the majority of specimens which are referable to this species. The interspaces between this central spiral and that on either side of it are broader than those between other spirals. On the body-whorl of a large specimen (Pl. I, fig. 11) there are three uniform and equidistant spirals on either side of the central one. Above the upper set of three spirals, next to the suture, two additional new spirals have appeared. Below the three lower spirals occurs a broad interspace, and below that the spirals of the spindle. These are very oblique, diverge strongly and are early supplemented by secondary spirals, intercalated between the primary ones. In the preceding whorls, the first or uppermost of the spirals of the spindle appears just below the suture of the overlying whorls. The costæ become flattened on top in the adult. They are strong and slightly narrower than the interspaces separating them. The strengthened median spiral is not always in the center of the whorl. Frequently it is somewhat above the center, indicating that increase in breadth of whorl with continued growth was less on the suture side than on the side of the spindle.

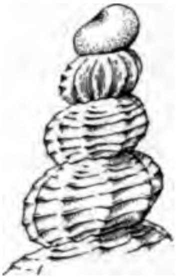


FIG. 1. *F. porrectus*, showing protoconch and early conch whorls. Enlarged × 10. (M. C. Z. 1402.)

In accelerated individuals of this species intercalated spirals appear occasionally. These arise in the broader interspace above the spirals of the spindle, and thus appear on the lower part of the body-whorl. A specimen from Hampshire, 62 mm. long, has the intercalated spirals in the penultimate whorl.

In some of the specimens from Hampshire, there are only two spirals on the body of the whorl, below the central carinated one; a condition eminently characteristic of *F. asper* Sowerby. These may represent transitional forms.

Localities: Barton Cliff (M. C. Z. 1402); Hordle Cliff, London clay (M. C. Z. 1400); Barton Beds, Hampshire (Stud. Pal. Coll. Harv. Univ. 120).

Horizon: London Clay, Barton Beds.

This species is among the most primitive of the genus yet discovered. It retains the normal nepionic characters of the genus throughout life with scarcely any modifications.

FUSUS ACICULATUS Lamarck.

(Plate I, figs. 3 and 4; connecting form pl. I, fig. 6.)

1818. *Fusus aciculatus* LAM'K, SOWERBY, Mineral Conchology, vol. III.

This species is typically developed in the Paris Basin only. In the British Eocene, however, occur individuals which approach this species very closely, and which are generally identified with it. A complete series of specimens may be selected, connecting *F. porrectus* with typical *F. aciculatus,* showing their close genetic relation. As the young *F. aciculatus* has the characters of *F. porrectus,* is is evident that the former is a descendant of the latter. The perfect gradation in characters which is to be expected in a complete series has led some authors to unite the two species. As will be shown later, the Parisian specimens are distinguishable from their British allies by their more pronounced ornamentation. Whether we call these distinct species, or merely varieties, is of no moment, as long as we recognize the difference between the two and the different degrees of development each has attained. By retaining the distinct names, we are able readily to demarkate the various steps in the evolution of this particular group.

A similar series of connecting specimens between the British representative of *Fusus aciculatus* and *Fusus asper* may be found, though the characteristics of the latter are always very pronounced.

The following are the characteristics of the British representatives of this species:

The protoconch is smooth and obliquely elevated in the first volution, the second having strong smooth vertical riblets. It ends abruptly with a slight varix.

The conch is characterized in its nepionic stage by the normal round whorl with rounded strong vertical ribs, separated by interspaces which are wider than the ribs. They are ornamented by revolving lines or spirals, which are well marked on the ribs but produce no tubercles or spines. This primitive character continues with scarcely any modifications through the succeeding stages of the conch in *F. porrectus,* which thus exemplifies a degree of development in which the adult shell has not passed beyond the normal characteristics of the nepionic stage of the genus.

In the specimens which lead to the present species, however, a slight modification which is clearly an advance, judging from the normal order of development in more highly differentiated species, occurs in the adult stage. This consists of a slight strengthening of the central spiral, which dimly suggests a carination such as is characteristic of most species of the genus. The spirals are commonly uniform and equidistant, except near the upper suture, where new ones make their appearance, which are of course at first thinner and nearer together. When one of the spirals becomes stronger on the center of the whorl, it generally leaves three, rarely four, and more rarely still two spirals on the shoulder above it. Assuming that the strengthened spiral is in all cases the same one in the same species (presumably the first spiral to appear, if we could trace them back to their beginning), the suggestion presents itself that those shells of the same species, in which only two spirals lie between the strengthened spiral and the suture in the adult individual are more primitive than those in which three appear, and both are more primitive than those in which four appear. This is suggested by the fact that in the shell with four spirals above the carina (*i. e.*, the central stronger spiral) in the adult, there are only three in an earlier stage, above this same spiral, whether strengthened or not, and in a still earlier stage only two. If we go back far enough, only a single spiral would probably appear between that which is strengthened later on, and the upper suture.

The shoulder above the strengthened spiral or carina is always convex in this species, and never becomes flattened or in any other way accentuated, except by the appearance of the carina. The ribs extend uniformly from suture to suture, diminishing but slightly as they approach the upper one.

Another modification of the primitive type on specimens which are included within the species is found in the accentuation of the spirals upon the ribs, thus producing a subnodose or subspinulose intersection. This is a feature eminently characteristic of specimens of this species in the Paris Basin, from which the type of Lamarck was derived. It also suggests the British *F. asper,* in which this feature is strongly developed.

Below the center of the whorl, and just below the suture, is a broader interspace than elsewhere on most adult specimens of this species. This space, lying between two primary spirals, has in a few of the more accelerated individuals an intercalated secondary spiral in the ephebic stage. This feature might occur in an unaccelerated but extremely long lived and vigorous individual, after the normal adult stage is passed. In a single specimen intercalated spirals have been observed on other parts of the whorls, but these intercalations disappear again, before the shell has reached the adult stage.

Localities: Barton cliff (M. C. Z. 1401, 1403); Hordle cliff (M. C. Z. 1407, 27737); London clay, no loc. (M. C. Z. 1406); Muddiford Harts (M. C. Z. 27736).

Horizon: Eocene.

Two shells from Muddiford Harts are the most accelerated individuals of this species which have come to my notice. They have four and five spirals respectively on the shoulder above the carina, while the more advanced of the two has two intercalated spirals in the broad interspiral space on the under side of the whorl, which is generally free from spirals.

FUSUS ACUMINATUS Sowerby.

(Plate I, figs, 1, 2.)

1766. *Murex porrectus* SOLANDER (pars.), Foss. Hants., fig. 36.
1821. *Fusus acuminatus* SOWERBY, Min. Conch., vol. IV, p. 131, pl. 274.
1821. *Fusus aciculatus* SOWERBY, Min. Conch., vol. IV, corrigenda.

This name deserves to be revived for the species originally described under it by Sowerby. His description on page 131 of his Mineral Conchology fits well the specimens here figured and described under this name. Solander's *Murex porrectus,* fig. 36, in Brander's Fossilia Hantsoniensis which is cited by Sowerby as an example of this species, is a good illustration. In the corrigenda to volume IV of the Mineral Conchology *F. acuminatus* is made a synonym of *F. aciculatus* and as such it has since been generally regarded. Deshayes figures a Parisian specimen as a typical *F. aciculatus,* a form very different from that described by Sowerby and figured by Solander. Sowerby's species represents what appears to be a phylogerontic type, while the typical *F. aciculatus* is a progressive type, both, however, tracing their ancestry to the British *F. porrectus.*

The only specimen preserving any trace of the protoconch, in the collections examined, was imperfect; but the last portion remains (fig. 2), showing all the features found in the preceding species. The termination is abrupt, and the nepionic shell begins as abruptly. The spirals, seven of which appear on the nepionic whorl, are strong, sharp and separated by wide interspaces. They appear particularly marked on account of the faint development of the ribs. These are nearly obsolete, occurring mainly as faint wrinkles or wavings on the whorls, though on some of the neanic whorls they are moderately prominent.

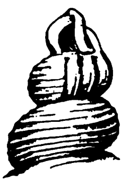


FIG. 2. *Fusus acuminatus.* The protoconch of fig. 2, pl. I. The total absence of ribs on the shell is only apparent and due to the position in which the specimen was drawn, *i. e.,* to the direction of the light. (M. C. Z. 1409.)

The whorls of the conch are uniformly rounded, and rather loosely joined, leaving a deeply impressed suture. This feature is characteristic of the primitive *F. porrectus.* There is even an incipient canaliculation along the suture, which in some cases does not proceed beyond a flattening which can be traced backward to a number of whorls, becoming gradually obsolete. This flattening does not occur in the young.

This species is either primitive or phylogerontic. The loose coiling and simple spirals (without intercalations) indicate the former state, while the absence of ribs indicates the latter. It is hardly expectable that there should be a *Fusus* primitive enough to be without ribs, for with the highly accelerated ribbed protoconch characteristic of this genus, we should assume that the most primitive *Fusus* conch is ribbed. Therefore, since ribs disappear in the old age of most Fusi it is most proper to consider this species as a descendant of the ribbed *F. porrectus,* but one in which the ribs have been almost entirely suppressed. The loose coiling is not inconsistent with the gerontic state, while the simple spirals may indicate that the series of which this species constitutes the phylogerontic terminal, is a primitive one.

Locality: Barton cliff, coll. Duval. (M. C. Z. 1408, 1409).

Horizon: Eocene, London clay.

FUSUS ASPER Sowerby.

(Plate I, figs. 7 and 8.)

1821. *Fusus asper* SOWERBY, Mineral Conchology, vol. 3, p. 131, pl. 274, figs. 4-7.

The protoconch is of the normal type, smooth in its early stages, and with vertical closely crowded riblets in the last half volution. The conch has nearly all the whorls angulated and ornamented with strong spirals. In the young shell two central spirals are stronger than others. Above these, on the flattened shoulder, are two striæ, and below them, just above the succeeding whorl, is another spiral which during the later stages becomes nearly as strong as those above it. In these later stages the three spirals are the most prominent on the shell. Where the spirals cross the ribs, flattened asperations or nodulations are produced, which are especially strongly marked in the adult stage. This species is derived from the British varieties of *F. aciculatus,* the strong ribs of *F. asper* being incipiently developed in that form. The small number of spirals on the shoulder and the simple character of these

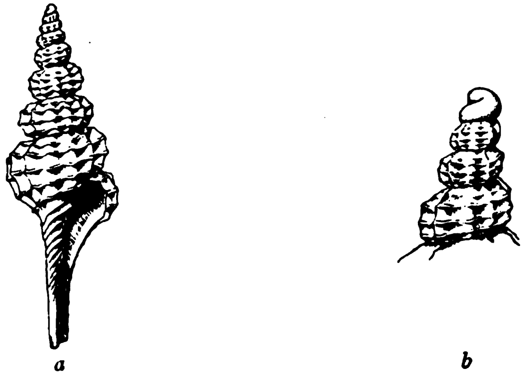


FIG. 3, *a, b.* *Fusus asper.* *a,* a specimen enlarged (× 5/3); *b,* the protoconch and early whorls still more enlarged (× 20/3). M. C. Z. 1406.

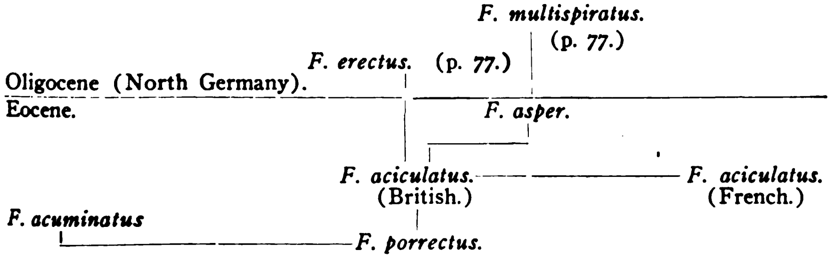
spirals indicates that its immediate ancestor was of a primitive type, and it must be regarded as a lateral branch from *F. aciculatus*. The only advance, then, which this species has made over others is in the subangulation of the whorls, and the strong development of the spirals.

Localities: London Clay, no loc. (M. C. Z. 27733); Barton cliff, (M. C. Z. 27738); Muddiford Harts (M. C. Z. 1404); London Clay, Barton (M. C. Z. 1403, 27741); Barton Beds, Hampshire (M. C. Z. 27735).

Horizon: Barton clay, Upper Eocene. London Clay (?), Lower Eocene.

RELATIONS OF THE BRITISH SPECIES OF FUSUS.

Considering *Fusus porrectus* nearest the primitive radicle, we may place it at the base of the series of British Fusæ. *F. aciculatus* is its natural successor, though the former species seems to have continued and to have been coexistent with the latter. *F. acuminatus* represents a lateral branch from the *F. porrectus* line, in which senile characters developed, resulting mainly in the obsolescense of ribs and the formation of a canaliculate suture. *F. asper,* on the other hand, must be considered a lateral branch from *F. aciculatus,* although this species in its accelerated individuals has in some respects become more specialized than *F. asper.* These relations may be expressed as follows:



FUSUS IN THE PARIS BASIN.

FUSUS ACICULATUS Lamarck.

(Plate I, figs. 13, 15.)

1822. *Fusus aciculatus* LAMARCK.
1824. *Fusus aciculatus* DESHAYES, Coq. Foss. Env. Paris, T. II, p. 514, pl. 71, figs. 7, 8.
1889. *Fusus porrectus* COSSMANN, Cat. Coq. Foss. Env. Paris, T. IV, p. 181.

There is only one typical representative of the genus *Fusus* in the Eocene beds of the Paris Basin. This is *Fusus aciculatus* Lamarck.

The protoconch and earliest whorls of the conch are similar to those of the British species. In the neanic and ephebic stages the Parisian variety shows some marked differences from the normal English variety. These differences are mainly of the nature of an advance in development, due to acceleration in the evolution of the Parisian over the British individuals. The ribs of the whorls are narrow, accentuated, but rounded on top, and separated by interspaces which are several times as wide as the ribs. The spirals are strong and sharp, producing a series of asperations on the ribs which recall *F. asper,* but are less marked than in that species. The carinate aspect of the whorl is about as strongly marked as in the British species. Three spirals are characteristic of the shoulder. The space between the spirals of the body whorl and those of the spindle is generally furnished with an intercalated spiral in the later whorls. These intercalated spirals appear early in some specimens and not until the last whorl in others, showing different degrees of acceleration.

In the larger specimens the ribs often become obsolete on the last whorl and the carina is also suppressed. These features are gerontic, and not individual, but mark a general decadence of this branch of the genus. Normally this variety shows a distinct advance over the English variety, as it is characterized by the accentuation and earlier appearance of all the progressive features of the species, which in the British variety appeared late in the ontogeny and were never strongly developed. On the other hand, further advance through continued accentuation of the progressive features appears to have been prevented by the peculiar conditions which existed in the Paris Basin; and in common with other species of the family, *F. aciculatus* assumed gerontic characteristics.

Localities: Paris (M. C. Z. 1411, 1412); Parnes (M. C. Z. 1410).

Horizon: Eocene, Calcaire Grossier of the Paris Basin.

This species appears to be a local modification of the variety characterizing the British Eocene. While we must thus postulate a connection between the British and the French Eocene Basins, permitting species to migrate from one to the other, the individual characters of the species in the two areas show that the connection was not such as to allow free intercommunication.

2. THE FUSUS COLUS SERIES.

This series comprises the typical Fusi, including the type species, *Fusus colus* Lamarck. The species of this series are characterized by the possession of a long slender spire and a similarly slender and elongated spindle. *Fusus colus* occupies a somewhat advanced position in the series, possessing some of the features characteristic of the terminal members of the series. This group of Fusi has its earliest representation in the Miocene (?) of the Antillean region, but no species have as yet been recorded from the Old World Tertiary. Modern representatives are found in the Antillean waters of the New World, but they are not very common. The series is, however, well represented in the Indo-Pacific seas where most of the living species occur.

TERTIARY SPECIES.

FUSUS HENEKENI Sowerby.

1850. *Fusus henekeni* SOWERBY, Quart. Journ. Geol. Soc., vol. 6, p. 49.

1876. *Fusus henekeni* SOWERBY, GUPPY, Quart. Journ. Geol. Soc., vol. 32, p. 521, pl. 28, fig. 6.

Not *Fusus henekeni* GABB, Journ. Acad. Nat. Sci. Phil., 2d ser., vol. 8, p. 350, pl. 45, fig. 31.

The protoconch of this species is typically fusoid, though somewhat more depressed than that of most species. It consists of one and one half volutions, the last half or two third volution being furnished with numerous smooth, narrow and closely crowded vertical ribs. The protoconch ends abruptly, though no strong varix occurs, while the ornamentation of the conch begins as abruptly. The whorls of the conch embrace rather closely; they are round and are furnished with round, broad and thick ribs, which are separated by narrower interspaces. Strong, nearly uniform spirals encircle the shell, the three peripheral ones being somewhat more pronounced than the others. Above these occurs another spiral, and below them two additional ones. The spirals remain simple as far as the sixth or seventh whorl, when intercalated spirals appear. In the later whorls the lines of growth are lamellose, producing a strongly cancellated appearance.

The whole aspect of this shell, as well as its more detailed characteristics, recall forcibly the recent species *F. turriculus* from Chinese waters, and *F. eucosmius* from the Caribbean sea. Its most marked distinction lies in the closer embracing whorls, which give the shell a somewhat shorter and stouter aspect; and in the stouter ribs which give it a somewhat more rude aspect. On the whole, it must be confessed that very little difference exists between the recent and the Tertiary species from the same region.

In one specimen in the collection of the Philadelphia Academy the intercalated spirals do not appear until the tenth or last whorl, the ribs at the same time becoming obsolete. Other specimens with obsolete ribs on the last whorl have been observed. This feature, showing individual senescence, also occurs in the recent species.

Localities: San Domingo (Phil. Acad. Sci.); Jamaica (Phil. Acad. Sci.).

Horizon: Bowden beds of the Upper Oligocene or Chipolan stage (Dall—Table Tert. Hor. N. Am., p. 340).

FUSUS HAITENSIS Sowerby.

1850. *Fusus haitensis* SOWERBY, Quart. Journ. Geol. Soc., vol. 6, p. 49.
1876. *Fusus henekeni* var. *haitensis* GUPPY, Quart. Journ. Geol. Soc., vol. 32, p. 524, pl. 28, fig. 2.

This species is like the preceding except that the last two whorls show a flattening of the shoulder and a peripheral angulation. The ribs also become obsolescent towards the sutures, but remain strong on the periphery, thus producing a crude nodulation. The last two whorls are also somewhat more drawn out, so as to expose more of the preceding whorl. Intercalation begins early. In the specimens examined the apex was imperfect, and intercalated spirals were present on the earliest whorl preserved.

In the specimen figured by Guppy at least four angular whorls occur; the ribs continue to the last whorls, though prominent only on the periphery. The keel is sharp and strongly developed, the shoulder flat, and the spirals compound. The shell is a parallel to *F. toreumus* in the *F. colus* series.

This species is an accelerated *F. henekeni*, but with constant characteristics, which show that this is not a case of individual gerontism. It is rather phyletic, and hence of specific value. From this it appears that this species is not to be united with the preceding one, as has been done by Guppy, Gabb and others.

Locality: San Domingo (Phil. Acad. Sci.).

Horizon: Upper Oligocene (occurring with the preceding).

RECENT SPECIES.

FUSUS EUCOSMIUS Dall.

1889. *Fusus eucosmius* DALL, Blake Moll., p. 167, pl. 35, fig. 5.

This species is more compact and shorter than the Chinese *F. turricula,* which it resembles closely. The protoconch has a more compact appearance, the ribs in the latter portion being somewhat stronger than those in *F. turriculus.* The protoconch ends in a strong varix. Intercalation begins on the fifth or sixth whorl. The three central spirals generally become prominent in the young shell, sometimes as early as the second or third whorl. The middle one of the three is always the strongest. A slight flattening of the shoulder accompanies the strengthening of the central spirals, this feature being most marked in the adult. The shoulder spirals do not increase in strength in the same proportion that the central ones do, and hence there is a marked difference between these two sets in the adult. In the adult the ribs are generally more bulging than is the case in *F. turriculus.* The aperture is often strongly contracted, and a sudden enlargement like a strong varix has been observed in some specimens.

With the typical form occurs a variety which approaches much more closely to *F. turriculus* than does the species. In fact, the two might be considered identical if found in the same waters. This variety has the typical fusoid protoconch, with narrow riblets on the last two-third whorl. It is slightly more condensed than the Chinese species, not so much through greater embracing of the whorls, but through a greater vertical compression of the whorls, which makes them appear more swollen at the middle. The spirals have the same sharp character where they cross the ribs, but they remain simple somewhat longer, intercalated spirals appearing only in the last whorl, and then not becoming very prominent. The ribs are much less prominent than in the species proper, and they are always more than their width apart, becoming still further separated in the last whorl.

This variety compares best with immature *F. turriculus,* in which the whorls and ribs have not yet become swollen.

Localities: Off Key West, U. S. Fish Comm. station 2316, 50 fms. on coral, temp. 74 degr. 2 spec. (U. S. Nat. Mus. 93647); between Tampa and Dry Tortugas, U. S. Fish Comm. Sta. 2411, 27 fms. (U. S. Nat. Mus. 93649); off Key west U. S. Fish Comm. Sta. 2317, 45 fms. (U. S. Nat. Mus. 83511); off Key West, Sta. 2318, 45 fms. on coral, temp. 75 degrees (U. S. Nat. Mus. 93648).

Variety: Between Miss. Delta, and Cedar Keys, Sta. 2402, in mud, 111 fms. 2 specimens (U. S. Nat. Mus. 93650); Gulf stream, Stimpson dredge (M. C. Z. 962), 1 spec.

FUSUS TURRICULUS Kiener.

(Plate II, fig. 1; Plate XVII, fig. 1.)

1842. *Fusus turricula* KIENER, Iconographie, p. 6, pl. V, fig. 1.
1847. *Fusus turricula* KIENER, Reeve, Iconica, pl. 6, fig. 23.

The protoconch of this species represents the typical *Fusus* protoconch. The whole protoconch comprises about one and one half volutions, of which the first is smooth, and the other half furnished with faint crowded, vertical riblets, which become stronger towards the end. A strong, smooth varix marks the end of the protoconch.

The conch begins abruptly, with rounded whorls, rounded ribs, at first somewhat fainter than the terminal varix of the protoconch, and rounded revolving spirals, which produce a strong sculpturing on the ribs. The spirals become stronger, but remain simple for the first two volutions of the conch. Then intercalations begin, at first on the lower part of the whorl, and then farther up. The intercalations become compound by the sixth volution of the conch, the striæ near the center at the same time becoming sharper on the ribs, and the latter less strongly outlined. In some specimens an incipient flattening appears on the shoulder and with this usually appears a slight peripheral angulation. In such accelerated individuals the upper one of the three central spirals increases in strength, and the space above produces the flattened shoulder. The ribs become obsolete towards the sutures but remain swollen on the periphery, thus giving the angulation a resemblance to a subspinose carina. Such a subangulation is not infrequently followed by a return to a normal round-whorled condition, when the ribs assume again their normal characteristics.

Sometimes specimens occur which retain a more primitive form of whorl and spiral, the latter remaining uniform throughout, though with intercalations, while the whorls retain their rounded outline. Individual senescence is marked by the obsolescence of the ribs of the last whorl, and by the separation of the inner lip from the columella.

The whorls of normal specimens of this species embrace only the spindle of the whorl preceding, thus exposing as much of the whorl above the lower as below the upper suture. This gives to the whorls the appearance of resting the one upon the other, and gives the shell a particularly graceful outline. In some aberrant individuals however (*F. chinensis?*) the whorls embrace more, giving the shell a stouter aspect. This leads to such species as *F. reeveanus* Phill.

Localities: China sea (M. C. Z. 915, 916, 917, 918, 33); China sea (U. S. Nat. Mus. 18380-b, 91747); Manila, Stearns coll. (U. S. Nat. Mus. 91748); China sea (Phil. Acad. Sci.).

A magnificent specimen eight inches long, in the Haines collection of the American Museum of Natural History, shows the normal gerontic characteristics of this species. The specimen is from the China seas.

About five normal volutions occur, with simple spirals and the form and contour of whorls and ribs usual in this species. These are followed by six volutions of the same type, but with additional spirals intercalated between the primary ones. At the end of this, the eleventh whorl, the size of the shell and all its characteristics are those of the normal individuals of *F. turriculus*. The secondary spirals have attained the size of the primary ones, and tertiary spirals make their appearance.

The last two whorls are free from ribs, except at the beginning, where faint indications occur. The whorls are uniformly rounded, and have all the characters of those of *F. nobilis,* to which this species is a parallel. It is, however, much more slender than *F. nobilis*. It will be observed that a larger number of young whorls are marked with simple spirals than is the case in *F. turriculus* ordinarily. As far as the early stages are concerned, then, this individual is more retarded in development than the normal. The long life of the individual was favorable to the development of normal regressive characteristics; no indications of progressive characters, such as the incipient angulation of the whorls found in some normal individuals, and leading to *F. tureumus*, have been observed.

FUSUS REEVEANUS Philippi.

1847. *Fusus multicarinatus* Reeve, Iconica, pl. 6, fig. 22.
1851. *Fusus reeveanus* Philippi, Abbildungen, vol. III, p. 119.

No authentic specimens of this species have been seen, though some specimens in the U. S. Nat. Museum may belong here. The species was first figured by Reeve, as *F. multicarinatus* Lam. Kiener, however, figured a wholly distinct shell as Lamarck's type of *F. multicarinatus*. Sowerby refigures Reeve's shell under Lamarck's name, adding that "Kiener's shell has angular whorls, while Lamarck's has 'tours tres-arrondies.'" Tryon adopts Kiener's figure as the type of Lamarck's species. Philippi apparently agrees with Kiener. Tryon makes the present species a variety of *F. spectrum* Adams and Reeve. It is, however, distinct, and Philippi's name must stand.

This species represents the stout mutation of *F. turriculus*, being connected with that species by the stouter varieties of the same (*F. chinensis?*). Sowerby says that the difference between this species and *F. turriculus* lies "in the greater prominence of the plaits and whorls and the deeper excavation of the suture" in the latter species. It seems proper to call this species a lateral branch from the *F. turriculus* stock, developed under conditions which enforced upon the shell a greater degree of compactness and solidity during growth.

Habitat: Unknown.

FUSUS NOBILIS Reeve.

1847. *Fusus nobilis* Reeve, Iconica, Fusus sp. 60.

A magnificent specimen of this species occurs in the Haines collection of the American Museum of Natural History. It is almost identical with Reeve's figure 60, in shape and size. It is the *turriculus* type but in a condensed form. Its ribbed stages agree completely with Reeve's figure of *F. reeveanus*, to which the present species holds the same relation as the large gerontic type previously described holds to *F. turriculus*. *F. nobilis* is an extremely accelerated type, intercalated spirals appearing in the youngest whorls preserved (third or fourth). There are about nine ribbed whorls of the *reeveanus* type. In the seventh whorl tertiary spirals appear, which in the ninth become compound, having divided into two or sometimes more.

Locality: Philippines.

FUSUS SPECTRUM Adams and Reeve.

1848. *Fusus spectrum* Adams and Reeve, Voyage Samarang.
1848. *Fusus spectrum* Reeve, Iconica, pl. 18, sp. 68.

No specimens of this species have been seen, but from the figure given by Reeve it appears to be an accelerated species of the *F. tur-*

riculus type. The preëphebic characters appear to be those of an adult *F. turriculus,* while the ephebic characters consist chiefly in a strongly developed keel, which is at first nodulated, but appears to lose these nodes on the latter portion of the last whorl. If this diagnosis is correct we have here another lateral branch from the *F. turriculus* stock, in which the angulation, developed to a slight degree in many specimens of *F. turriculus,* becomes a permanent adult characteristic of specific value.

Habitat: Eastern seas (Adams and Reeve).

FUSUS TOREUMUS Martyn.

(Plate II, fig. 7.)

1784. MARTYN, Univ. Conch., t. 56.
1843. *Fusus toreuma* LAMARCK, Anim. sans Vert. (Desh. edit.), vol. IX, p. 444.
1847. *Fusus toreuma* REEVE, Iconica, sp. 27.

This species begins with a well-developed *turriculus* stage, in which the whorls are round, furnished with strong rounded ribs and ornamented by strong and regular spirals. In a specimen in the Boston Society of Natural History collection there are seven round *turriculus* whorls, before the angulation begins. Usually the specimens of this species are more accelerated, which is shown by the fact that the *turriculus* stage is restricted to a few only of the apical whorls. In the specimen mentioned intercalated spirals appear in the fifth whorl, or before the angulation. Usually they arise with the angulation, which in the majority of cases is in the fifth or sixth whorl. The angulation is generally caused by the strengthening of two spirals, thus producing a bicarinate aspect. When only one spiral is strengthened in the beginning, this may be supplemented by subsequent strengthening of an adjoining spiral, either above or below. Sometimes both upper and lower spirals are strengthened, thus producing a tricarination. Not infrequently, however, in the adult one of the spirals (typically the central one) surpasses the others in strength, thus giving to the tubercles a sharp aspect instead of the blunt appearance produced by the equal development of two or more spirals.

With the appearance of the angulation the shoulder becomes gradually depressed, until it has become quite flat or even somewhat concave. Simultaneously with the flattening of the shoulder the ribs become obsolete towards the suture, and finally are represented only by the tubercles, a strong development of which is characteristic of the species.

Old age is shown in this species either by a return to the normal round-ribbed condition, a clear case of atavism, or by a gradual loss of the tubercles, and the production of a round ribless whorl. In this latter case a slight carination generally precedes the complete loss of adult characteristics. Accompanying this is a loosening of the inner lip, which often becomes quite separated from the columella. A strong posterior canal is also frequently developed by an encroachment of the final portion of the last whorl on that preceding it.

This species and *F. tuberculatus* have many characters in common, indeed there are intermediate individuals connecting them. Nevertheless they are distinct species, representing the same stage of development in species apparently belonging to separate series. That they are genetically related can not be doubted, in fact they may be regarded as representing the two series at the point of divergence. The slender character of this shell, its smaller angle of divergence and the somewhat greater obliquity of the whorls distinguish this species from *F. tuberculatus* and at once suggest its relation to *F. colus.* The coloration of the present species consists chiefly in dark brown spots in the intertubercular spaces, these occasionally appearing in the spaces between the ribs, on the *turriculus* stage.

Localities: East Indies (M. C. Z. 937, B. S. 219 and 262, Nat. Mus. 7378, 36720 and 36718); Ceylon (Nat. Mus. 91741, 131157); Pacific islands (Nat. Mus. 18379, Phil. Acad.?); Mauritius (M. C. Z. 884); Tongatabue (Nat. Mus. 7378) (Nat. Mus. 2713).

FUSUS COLUS (Linné).

(Plate II, figs. 8–11.)

1767. *Murex colus* LINNÉ, Syst. Nat. ed., 12, p. 1221.
1817. *Fusus colus* SCHUMACHER, Essai d'un nouveau syst. d. habit. des vers Testacés.
1842. *Fusus colus* KIENER, Iconographie, pl. IV, fig. 1.
1847. *Fusus colus* LAMARCK, Hist. An. sans Vert. (Desh. Ed.), p. 443.
1847. *Fusus colus* REEVE, Iconica, sp. 11.

The protoconch of this species has been observed in only one specimen, all the others being imperfect. In that specimen it partakes of the brown color of the other apical whorls, but is perfectly smooth for the first volution. The remaining half volution of the protoconch is ornamented by fine smooth vertical riblets, about fifteen in number. The protoconch ends abruptly with a strong varix.

The conch begins with a *turriculus* stage, consisting of six or seven whorls which are round and furnished with regular rounded and spirally sculptured ribs. In rare cases there are more than seven *turriculus* whorls. Intercalated spirals appear in the fourth or fifth volution, or in general before the completion of the *turriculus* stage.

The second stage in the development of the conch is the *toreumus* stage, in which the characters are those of an adult *F. toreumus.* This stage appears gradually, being heralded by the appearance of a peripheral angulation, which, becoming more and more pronounced, finally merges into a strong tuberculated keel. As in *F. toreumus,* the ribs become fainter and fainter away from the periphery, until finally the keel alone is characterized by them. Even in the coloring the *F. toreumus* character is maintained, this consisting of brown spots in the inter-tubercular spaces. This is also true in general of the *turriculus* stage, in which the brown color is confined to the spaces between the ribs.

The *toreumus* stage covers usually from three to four volutions, after which the tubercles become obsolete, and finally disappear. There remains then finally a smooth keel, more or less strongly marked in the center of the whorl, and giving it a subangular appearance. This may be regarded as the *colus* stage; but in a typical *F. colus,* all three stages, viz., the *turriculus, toreumus* and *colus* stages are present. There may be a greater or less development of one or the other, according to individual acceleration or retardation, but none is absent. The occurrence of these three stages clearly establishes the ancestry of this species, and marshals into proper array the other species of this series.

In many cases a fourth stage occurs, in which the keel becomes suppressed, a smooth rounded whorl remaining. This is the *longicaudus* stage, and marks the early stages of gerontism in this species. The appearance of this stage does not make a *F. longicaudus* of this species, since in the typical members of that species the *toreumus* stage is suppressed. It is simply a case of individual acceleration, so that normal gerontic characteristics appear in the ephebic stage of an otherwise normal *F. colus.*

The *colus* stage—a well-developed median keel—may occupy only a portion of a volution, or it may extend over a volution and a half. The *longicaudus* stage seldom occupies more than a small part of a volution. Two specimens from the Indian ocean (M. C. Z. 32) show pronounced variations. One is accelerated, showing angulation and intercalated spirals on the second or third volution, and a keeled (*colus*) stage covering over a volution and a half. This is succeeded by the keelless (*longicaudus*) stage, covering a fraction of a volution. The earlier stages being shortened, room is made for the introduction of additional stages at the end. This is not to be regarded as individual senescence, but as a case of acceleration in development, there being nothing in the character of the shell to indicate that the individual was not perfectly vigorous. (Plate II, fig. 8.)

The other specimen is an example of a retarded individual. It has five shouldered and tuberculated whorls following the *turriculus* stage. There is no *colus* stage, the tubercles persisting to the end (Plate II, fig. 9).

According to the definition of our species, this specimen should be classed with *F. toreumus,* never passing beyond the *toreumus* stage. It has, however, the general aspect of a *F. colus,* being larger than the average *F. toreumus.* The specimen furthermore suggests having been derived from a *F. colus* rather than *F. toreumus,* and that therefore it is retarded in development and not primitive. This can perhaps not be proven, but as stated the whole appearance of the shell suggests it.

It will thus be seen that a young *F. colus* or a retarded one have the characteristics of an adult *F. toreumus,* and that though a young individual may perhaps be placed under its proper species, the position of a retarded individual must be determined by the standard of individual opinion.

Another individual (M. Z. 904 not figured) shows the same retarded characteristics. In this, the first seven or eight whorls are in the *turriculus* stage, intercalated spirals appearing in the last two of these. The next whorl is transitional, and the two following are typical tuberculated *toreumus* whorls. The last whorl has the tubercles less compressed vertically; these therefore have a more rounded or knobbed appearance. This gives them a resemblance to those of a normal *F. tuberosus,* which, however, belongs to a distinct series.

This individual is certainly not a typical *F. colus,* neither can it be classed with typical *F. toreumus.* It is better classed as a retarded and abnormal variety of the former.

A specimen from Amboyna (B. S. 6078 not figured) has eight *turriculus* whorls, four *toreumus* whorls and one *colus* whorl, this latter towards the end merging into a keelless *longicaudus* stage. The number of angular *toreumus* whorls is sometimes as high as six. It is not uncommon for the angular tubercled whorls to extend nearly to the end, the *colus* stage being restricted to a portion of the last whorl. Such shells, though similar to, are yet distinguishable from gerontic individuals of *F. toreumus.* In all these varieties the inner lip is always more or less strongly lirate.

The following stages then, may be distinguished in typical *Fusus colus:*

Protoconch	*a,* smooth. *b,* ribbed.
Nepionic	*turriculus* stage.
Neanic	*toreumus* stage.
Ephebic	*colus* stage.
Gerontic or paraephebic in accelerated individuals	*longicaudus* stage.

Localities: East Indies (M. C. Z. 936, 904?, B. S. 219); Philippines (M. C. Z. 902); Indian Ocean (M. C. Z. 32); Amboyna: Maluccas, (B. S. 6078); Ceylon (Reeve).

FUSUS LONGICAUDUS Bory, var. TOREUMOIDES var. nov.

(Plate II, figs. 2 and 3.)

Fusus colus and *F. longicauda* in part, of authors.

This variety is intermediate between *F. colus* and *F. longicaudus.* It differs from the normal *F. colus* in having the *toreumus* stage weakly developed or almost suppressed, while the *longicaudus* stage is well developed. It differs from *F. longicaudus* in not having the *toreumus* stage wholly suppressed. The *toreumus* stage is not so much condensed, as it is weakly developed over the extent of several whorls. The *colus* stage is generally well developed, though often obscured by the strengthening of other spirals. In a specimen from Ceylon (M. C. Z. 883) the tubercles are continuous nearly to the end, but throughout they are faint, more as in the latter portion of *F. colus.* The last whorl assumes the *colus-longicaudus* characteristics.

Sometimes the ribs reappear after they have disappeared, thus showing reversion to an earlier characteristic.

A specimen of unknown locality (M. C. Z. 908) belongs here. The first whorl or two are broken away, and of the remaining, seven are round with round ribs and uniform spirals. Intercalated spirals appear in the latter of these. On the succeeding whorls the ribs become faint and practically disappear. A keel is gradually developed through the strengthening of the lower of the two central spirals. The third central spiral also becomes strong, giving the appearance of bicarination. From temporary reappearance of ribs the keel at times becomes nodulose.

Localities: Ceylon (M. C. Z. 883); no loc. (M. C. Z. 905, 908).

FUSUS LONGICAUDUS Bory.

(Plate II, figs. 4–6.)

1816. *Fusus longicauda* Bory, Enc. Meth., pl. 423, fig. 2.
1847. *Fusus longicauda* Reeve, Iconica, sp. 15.
1881. *Fusus longicauda* Tryon, Man. Conch., vol. III, pl. 38, f. 157.

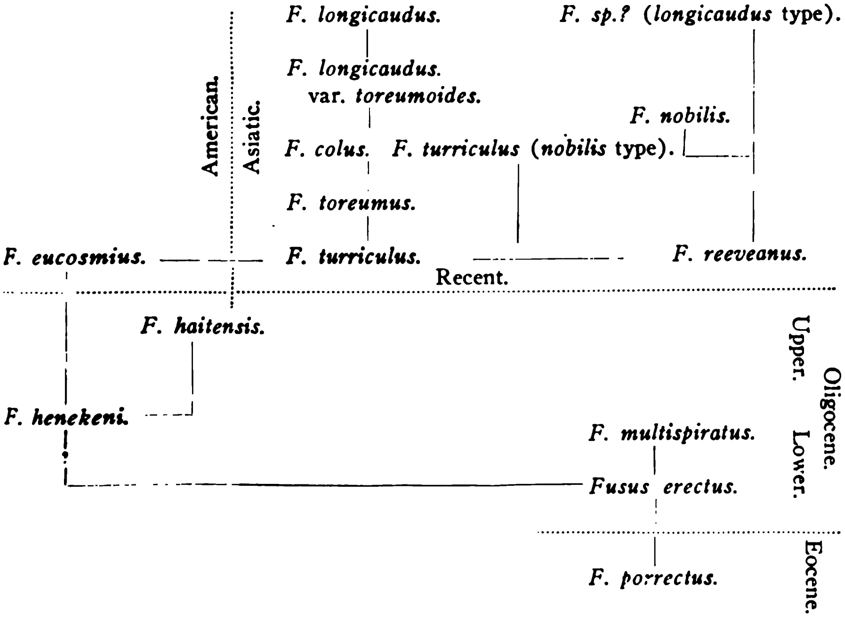
This species forms the terminal member of the series. The first nine or ten whorls of the conch are identical with *F. turriculus* in one specimen (M. C. Z. 906, Pl. II, fig. 6), while in others only seven or eight whorls are in the *turriculus* stage. On the succeeding whorls the striæ or spirals become môre prominent, the ribs becoming fainter. This occurs generally first on the upper portion of the whorl, thus giving a shouldered expression to the shell. After that the ribs disappear entirely, and in the most typical specimen seen the last three whorls are ribless and marked only by spirals of two series. Intercalated spirals appear on the seventh or eighth whorl, but do not reach the strength of the primary ones. The central primary spiral often becomes stronger than the others, thus producing a slight keel, and suggesting the *colus* stage.

The ribs are usually thicker and more closely crowded than on *F. turriculus* of the same size. They resemble more the ribs of the adult of that species. A greater crowding is the necessary result of the proportionally larger size of the ribs.

Two specimens from Ceylon (Phil. Acad.) are of a ruder type than the normal. The *turriculus* whorls recall those of *F. reeveanus* rather than those of *F. turriculus.* The ribs are broad, round and separated only by a depressed line. The sutures are not so deeply impressed as in *turriculus,* but partake of the character of *F. reeveanus.* A faint angulation appears in some of the neanic whorls, which in consequence take on a shouldered expression. This disappears in the last whorl, which is round and ribless with strong primary and slightly weaker secondary spirals.

It is possible that these specimens represent a *longicaudus* stage in development of a series beginning with *F. reeveanus,* and paralleling the series beginning with *F. turriculus.* If that is the case, these individuals will have to be made the types of a new species. Owing to the meager amount of available material, however, and because no authentic specimens of *F. reeveanus* have come under observation, no separation will be made at present.

The Fusus Colus Series.



Tryon (Man., v. III, p. 63) says of this species: "This is perhaps, a *F. colus* without carina or a *F. turricula* without ribs on the body-whorl." It is evident however that this is a distinct species occupying a definite place in the series.

Atavism occasionally occurs in this species, in the appearance of ribs of the *turriculus* type on the last whorl. There are seldom more than one or two of these.

Localities: Mauritius (M. C. Z. 906); Indian Ocean (B. S. 6080); Ceylon (Phil. Acad. Nat. Sci., n. sp.?).

The interrelations of the species of this series may be summed up as given in the preceding diagram.

3. FUSUS TUBERCULATUS AND ITS ALLIES.

FUSUS TUBERCULATUS Lamarck.

(Plate III, figs. 2, 3, 9.)

1822. *Fusus tuberculatus* LAMARCK, An. sans. Vert., 1st ed., t. VII, p. 123, no. 4.
1842. *Fusus tuberculatus* KIENER, Iconographie, p. 9, pl. VIII, fig. 1.
1843. *Fusus tuberculatus* LAMARCK, Desh. ed., t. IX, p. 444.
1847. *Fusus tuberculatus* REEVE, Iconica, sp. 38.

This species is closely related to *F. toreumus,* with which it appears to be genetically connected. The earliest conch stage of this species is the *turriculus* stage, essentially as in *F. toreumus.* This is succeeded by an angular stage, in which the characters are those of *F. toreumus,* the shell being much more slender than in the adult. The characteristic features of the species appear in the later neanic and ephebic stages.

The most characteristic feature of this species is the compressed character of the adult whorls, which gives the shell a broadly turreted appearance. The shoulder of the adult whorls is flat or even gently concave, devoid of ribs and margined by a strongly carinated keel. The beginning of the shouldered condition is variable; sometimes the early whorls take on an angular appearance, from the development of a strong central spiral; sometimes two strong spirals appear, causing bicarination.

In the adult whorls the nodules of the keel are generally compressed vertically, often assuming a spinose appearance. Sometimes, however, they assume a rounded form, resembling those characteristic of *F. undatus.*

In accelerated individuals the tubercles become confluent on the last whorl, producing a smooth keel. This is particularly well shown in a specimen from Indo-Pacific waters (Nat. Mus. 91740). This specimen is broadly turreted and shows a succession of round and ribbed, angular and ribbed, and angular and noduled whorls, each type grading into the other. In the last type the shoulder is very flat, and it is continued for two and a half volutions. Then the tubercles disappear, and for something over half a volution only a keel occurs, with the shoulder somewhat rounded again. The rounding of the shoulder increases toward the aperture, at which the keel has practically disappeared (being indicated only by a strong spiral), and the outline of the lip has become a uniform curve. Similar features are shown by two specimens from Queensland (M. C. Z. 887). They are of the broadly turreted type which characterizes this species. The tubercles after continuing over two whorls become confluent into a carina. These cases show that the same succession of stages occurs in the series to which *F. tuberculatus* belongs as in that to which *F. toreumus* belongs. Both series undergo development in the same lines, producing parallel species, which are identical in characters which ought to be of specific value, but differ in characters of a higher taxonomic degree. In an extremely refined classification the series here designated would be considered as constituting distinct genera, the recurrence, in each series, of forms with the same specific characters being expected in conformity with the law of parallelism. The *colus* species, exemplified by the individuals above described, is not perhaps sufficiently established to become admitted to specific rank, according to the prevailing opinions as to what constitutes a species; nevertheless for convenience sake, in referring it to its proper place it will here be designated as *F. tuberculato-colus.*

In the Haines collection of the American Museum occurs a specimen even further advanced. In this the sharp nodes are entirely suppressed, there being but a moderate angulation over which the ribs continue to the ante-penultimate whorl. Altogether there must have been seven or eight round whorls, followed by two angular whorls, in which the ribs and nodes progressively disappear. The keeled character is continued for about a whorl—though faint and with faint nodulations— and is succeeded by nearly a whorl with round contour. The aperture is gerontic. This approaches very close to the *longicaudus* stage and might be called *F. tuberculato-longicaudus* for the sake of distinction. The form shows that it belongs to the present and not to the *colus* series.

The coloration of *F. tuberculatus* is a reddish-brown spotting between the tubercles. The shell is protected by a periostracum of a light brown color, furnished with papillæ at the points of intersection of the spirals and the lines of growth.

These shells are readily distinguished from the members of the *colus* series by the shorter and more broadly turreted spire, and by the shorter anterior canal.

Localities: Indian Ocean (M. C. Z. 30); Red Sea (M. C. Z. 885); Zanzibar (M. C. Z. 889); Mauritius (M. C. Z. 884); Queensland

(M. C. Z. 887, var.); Indo-Pacific (Nat. Mus. 91740, var.); no locality given (M. C. Z. 886, 888, 880).

FUSUS NODOSO-PLICATUS Dunker.

(Plate III, fig. 10.)

1867. *Fusus nodoso-plicatus* DUNKER, Nov. Conch. Moll. Mar., p. 99, pl. 33, figs. 3, 4.

1881. *Fusus tuberculatus* var. *nodoso-plicatus* TRYON, Man. Conch., vol. III, p. 54, pl. 34, fig. 110.

This species is of the general form of *F. tuberculatus,* but larger and more robust. The protoconch and early whorls of the conch are broken away in the only specimen seen. Between four and five of the remaining whorls are round, with round ribs and uniform spirals. Intercalated spirals appear in the second or third whorl. Two of the central spirals finally become strengthened, producing a double carination, a feature not uncommon in *F. tuberculatus.* An increased strengthening of the lower of these spirals produces the normal keel which becomes nodose where crossed by the ribs. These latter gradually disappear from the shoulder, which becomes flatter and flatter. Below the keel they remain in force somewhat longer, dying out, however, downwards. The spirals are strong, and compound intercalation occurs while the shell is still young.

Some of the very robust individuals of *F. tuberculatus* resemble this species closely. This resemblance is even found in the coloration, which is similar in both species. The present species may be regarded as a vigorous descendant of *F. tuberculatus,* characterized by an accentuated development of the features of that species. Nevertheless it is more than a variety of *F. tuberculatus* as Tryon considers it.

Locality: Yenosima, Japan (M. C. Z. 894, Morse coll.).

FUSUS NODOSOPLICATUS var. LISCHKII var. nov.

(Plate III, fig. 5.)

1869. *Fusus nodosoplicatus* var. LISCHKE, Jap. Meer. Conch., pt. 1, p. 34, pt. 2, pl. 3, fig. 6.

This variety was first described by Lischke, who gives the following characteristics as distinguishing this form from the species. The characters of the young shell are identical with those of the typical form down to the sixth or seventh whorl. After this in the typical form the shoulders become flatter, and the ribs increase in thickness, forming tubercles on the shoulder angle. "In the variety, however, the ribs and tubercles scarcely increase in thickness in the seventh and eighth whorl, and after that begin to disappear. The two final volutions show only scattered indications of them, while the convexity of these whorls remains uniform, the last of these being well rounded."

"Occasionally the earlier volutions have the central spiral accentuated into a more or less strong keel. In the interspaces between the spirals occur from one to three transverse lines" (secondary spirals).

This variety, which occurs with the species, represents the accelerated type of this species. We note the same characters which we have seen in the *F. tuberculatus* and the *F. toreumus* series. The *colus* type occurs again in this species.

A small specimen of this variety from Japan (M. C. Z. 895, Pl. III, fig. 5) has the earliest whorls broken away. All the whorls are rounded, the earlier ones uniformly, the next ones with a bicarinate aspect, which merges into a unicarinate one, without, however, being strong enough to produce an angulation. Finally the carina becomes obsolete, the last whorl being uniformly rounded. Intercalated spirals appear in the third or fourth whorl. In the last whorl the ribs gradually become obsolete, the intercalated spirals at the same time becoming compound. The posterior canal is slightly developed and the lip is lyrate within. This shell represents a young individual, and its earlier whorls agree precisely with those of fig. 10 of the same plate.

This specimen may be said to represent the *longicaudus* stage of development in this series, bearing the same relation to *F. nodosoplicatus* that *F. longicaudus* bears to *F. toreumus*.

Localities: Japan Seas (Lischke); Yenosima, Japan (M. C. Z. 895, Morse coll.).

FUSUS PERPLEXUS A. Adams.

1864. *Fusus perplexus* ADAMS, Journ. Linn. Soc., Bd. 7, p. 107.
1868. *Fusus inconstans* LISCHKE, Jahrb. Mal. Gesell., I, p. 115.
1869. *Fusus inconstans* LISCHKE, Japan. Meer. Conch., pt. 1, p. 34, pt. II, Taf. III, figs. 1–6.
1831. Not *Fusus inconstans* MICHELIN, Mag. Conch., p. 33, pl. 33.
1879. *Fusus perplexus* E. A. SMITH, Proc. Zool. Soc., p. 202.
1881. *Fusus perplexus* TRYON, Man., vol. 3, p. 54, pl. 33, figs. 102–107.

The Protoconch of this species has not been seen.

The conch begins with rounded whorls, crossed by rounded ribs and furnished with uniform but strong round or sharp spirals. The *tuberculatus* (or *toreumus*) stage is characteristically developed in the variety described by Lischke as *F. inconstans,* while the typical form of Adam's species shows the more advanced *colus* stage of this series.

Var. NAGASAKII var. nov.

(*Fusus inconstans* LISCHKE.)

The typical form figured by Lischke retains its angular whorls to the end. The ribs also continue to the last whorl where they become obsolete. Tubercles, however, continue to the end (Lischke, pl. II, figs. 1, 2). The keel of the type specimens is formed by the strengthening of three central spirals similar to that of *F. toreumus*. Accelerated individuals of this variety have a portion of the last whorl without ribs or keel, being thus comparable to *F. colus*.

In typical specimens of this variety from Japan (Nat. Mus. 125894a, 123734a) the angularity of the whorls appears slowly, on the rounded regularly ribbed whorls of the early neanic stage. For about three whorls the angulation and ribs prevail together, after which, in the metephebic stage, the ribs disappear, while the keel still retains its strongly noduled character. Finally, in the parephebic stage, the nodules disappear, the keel remaining simple thereafter. This is the *colus* stage, and it is followed in one specimen by the early gerontic stage, in which the keel disappears too, leaving part of the last whorl uniformly convex (*longicaudus* stage). A specimen from Yokahama (Nat. Mus. 36554) nearly five inches in length, retains the nodulated keel to the end, though the ribs disappear in the last whorl. The shoulder of the adult portion of the shell is flat, and strongly delimited by the tuberculated keel. This is the most primitive (unaccelerated) individual of the species observed, and for the present series (that of *F. perplexus*) it represents what *F. tuberculatus* and *F. toreumus* represent for their respective series.

In the young of this and a number of other specimens a marked bicarinate aspect is imparted to the whorls by the strengthening of a spiral below the central one, which is itself strengthened. In one of these specimens this double carination is continued on later whorls after the appearance of the angulation. This feature appears to be true also of Lischke's typical specimens.

Connecting Lischke's with Adam's typical form are a number of intermediate forms, showing various degrees of acceleration. In some cases the angular ribbed whorls pass abruptly into angular whorls without ribs or nodes, a simple keel remaining. This passes into a keelless stage. In other specimens nodes or tubercles continue for a time, on the angular but ribless whorls, the whole merging gradually into a ribless, tubercleless and keelless round-whorled stage, where even the primary spiral is indistinguishable.

In all these specimens intercalated spirals appear early in the round-whorled stage.

The Typical Form.

(*Fusus inconstans*, var. LISCHKE.)

The essential characteristics of Adams' species are: " . . . anfractibus 7, convexis, longitudinaliter obsolete plicatis, transversim liratis, liris acutis aequalibus undulatis, lineis elevatis filiformibus alternantibus, liris transversis subnodulosis in medio anfractuum instructis." This is the variety which Lischke has named var. *minor* (I, pl. II, figs. 3–6). This "variety" falls again into several "subvarieties," which are comparable to the various species in the latter part of the *colus* series. (The author uses the terms variety and subvariety here out of consideration for those who constantly declaim against the subdivision of species, on the ground that the subject is made too difficult for "beginners." The author, however, maintains that these "varieties" and "subvarieties" are entitled to specific rank, even though the intermediate forms are all present.)

The first distinct mutation is that corresponding to *F. longicaudus* var. *toreumoides* of the *colus* series. This, judging from the description, appears to be the mutation selected by Adams as the type of his species. It is the mutation illustrated by Lischke on plate II, fig. 3, of part I of his work on Japanische Meeres-conchilien. In this specimen the round whorls are succeeded by subangular ones, which in turn give way to nearly round whorls again. The ribs are absent on the last part of the last whorl. In a young specimen (M. C. Z. 920) the subdued angulation with its obsolescent nodules is continued to the eighth or ninth whorl, where it is succeeded by a smooth keel, which fades toward the aperture where the whorl is uniformly convex. This specimen is very like the young of *F. closter* (pl. III, fig. 1), differing from it chiefly in having its early whorls much less crowded than is characteristic of that species. The young of these two species are closely related.

Figures 4 and 5 of Lischke's plate II represent a variety in which the round-whorled, round-ribbed character continues to the end. This may possibly represent a form which has never passed beyond the primitive round-whorled *turriculus* stage, but it is more probable that it represents a highly accelerated individual in which the angular stage is entirely suppressed.

A specimen of this variety in the collection of the National Museum (40650) is more slender than the majority of these shells. The early whorls are well rounded, with round ribs, and strong sharp spirals, which continue to the end. Intercalated spirals appear in the fourth or fifth whorl, or even later (the apex of the shell being broken away), and they are first seen between the two central ones of the primary spirals. There is scarcely any angulation, a slight flattening of the shoulder, and accompanying obsolescence of the ribs being the only approach to it. The ribs occur at intervals, but they are very faint. A long slender anterior canal occurs.

This shell has a distinctly different aspect from the others of this series. In outline, character of spirals, apical angle and character of the anterior canal, it agrees closely with *F. novæ-hollandiæ* from Australia, but the young is rounded, instead of bicarinate. The specimen is labeled from the Japan Sea.

Two specimens in the collection of the Museum of Comparative Zoölogy (920, 896) belong to this variety. In the first one the early whorls are normal, and are succeeded by whorls in which the shoulder, though still convex, is but faintly marked by ribs, and is margined by a nodulated keel. In the last whorl the nodules disappear, and the center of the whorl is marked only by a smooth keel. Intercalated spirals appear early. The other specimen is also round-whorled throughout, but the shoulder is not differentiated. On the later whorls the ribs become obsolescent, after which the whorls are only marked by spirals. This specimen represents the *longicaudus* type of this series. This type is illustrated by Lischke in figure 5 of plate 3, Japanische Meeres-conchilien, pt. II.

In some cases (Phil. Acad. 62118) the early whorls of specimens referable to this species are more closely coiled than usual, when they bear a strong resemblance to those of *F. distans*. There certainly exists an intimate relation between these two species, they being undoubtedly genetically connected. Both run through the same series of variations, and the same types are distinguishable in each.

Localities: Japan, Nagami Bay (Nat. Mus. 125894, 123734); Yokohama (Nat. Mus. 32341, 36554, 98352, 91752) (Nat. Mus. 40650); Lagamo Bay (Phil. Acad. 62118); no loc. (M. C. Z. 896, 920); Tatyama (Adams); Jedo and Nagasaki, Japan (Lischke).

4. THE FUSUS DISTANS SERIES.

The members of this series are found to-day in both East and West Indian waters. They are characteristically robust shells, broadly turreted, and with strongly embracing whorls. They run through the same variations found in other series, and the types of structure so characteristically developed in the *F. colus* series are again found in this group.

FUSUS DISTANS Lamarck.

(Plate III, figs. 4, 6 and 7.)

1822. *Fusus distans* LAMARCK, An. sans. vers., 1st ed., t. VII, p. 124.
1842. *Fusus distans* KIENER, Iconographie, p. 10, pl. 8, fig. 1.
1843. *Fusus distans* LAMARCK, An. sans. vers. (Desh. ed.), t. IX, p. 445 (with bibliography).
1847. *Fusus distans* REEVE, Iconica, sp. 28.

The protoconch of this species is of the normal fusoid type. No perfect specimen has been seen, but one in which the last stages of the protoconch are shown occurs in the collection of the Philadelphia Academy of Sciences (loc. Philippines). In the last whorl of the protoconch of this specimen occur numerous smooth crowded vertical riblets, and it stops abruptly with a varix.

The conch begins abruptly with round whorls, which are furnished with round vertical ribs, closely crowded, with only a narrow depression between. The ribs are crossed by simple spirals, of which three strong ones are visible at first, with a fourth one just below the upper suture. (The spirals do not begin as abruptly as in other species, for they are faintly shown on the last portion of the protoconch, where they are visible between the riblets, and even affect the last of the riblets themselves.) Intercalated spirals appear in the second whorl of the conch. The whorls are ventricose and at first very closely coiled, so that the suture in some specimens is scarcely impressed below the line of the whorls. In the fifth or sometimes the sixth whorl the shoulder becomes flattened, while frequently a strengthening of the central spirals still further accentuates the angularity. Sometimes from the strengthening of two spirals a bicarinate aspect is given to the shell, which later, from the subsidence of the lower one, gives way to a unicarination.

With the appearance of the angulation the ribs become fainter on the shoulder, and in the next whorl disappear altogether. The nodules, however, continue on the keel, becoming somewhat compressed vertically. In the final whorl, the vertically compressed tubercles are strong, and the shoulder is nearly flat. The primary spirals are strong, the secondary spirals are weaker, thus producing a distinct alternation. Sometimes compound intercalation occurs.

In one of the specimens from the Philippines (Acad. Sci.) the angulation never becomes as pronounced as in the normal shells. The shoulder remains convex, the tubercles disappear on the last portion of the final whorl, are replaced by a carina, and finally are only represented by a thickened spiral. This variety (the *colus* of the series), leads to *F. closter*. A similar individual, labeled *F. beckii* from Japan occurs in the Haines coll. Am. Mus. of Nat. Hist.*

Three specimens in the Jay collection of the American Museum (7975) almost completely represent *F. closter* of the West Indies, but they are labeled from the Red Sea. The last whorl is round, and the ribs on it are absent. The early whorls clearly show the *distans* features, but subdued. The later whorls become more rounded, and though a keel (or two) continues for some time, the round outline is more pronounced than any angularity.

This variety appears to be developed independent of the West Indian *F. closter,* which was developed from the West Indian representative of *F. distans*. The European *closter* type should have a distinct varietal name.

The American representatives of this species are generally slightly more accelerated than those from Indo-Pacific waters. They appear to assume the *F. closter* characters more readily, that species being the more characteristic representative of the series in American waters.

---

* Citation of localities on labels of modern shells can seldom be trusted. Dealers and collectors will give as the locality the habitat of the species with which they identify their shell. Thus a wrong identification means generally a wrong locality. Examples of this may be found in all our large museum collections.

When the tubercles continue throughout in the West Indian species, the characters are generally those of the Philippine shells. The fine striæ occurring between the spirals of the Philippine shells also occur on those from the West Indies. The shoulder is often more sloping in the American shells, thus giving them a more slender and elongate appearance. A slight but broad concavity exists on the upper portion of the shoulder. There is some variation of the apical angle, which, however, often equals that of typical Philippine shells.

The tubercles generally become confluent into a well-marked keel, which is sometimes undulating, and sometimes smooth, and occupies from a fragment of a volution to two volutions or more. In almost all cases, the keel disappears towards the end, a uniformly rounded whorl, furnished only with spiral lines, alone remaining.

It will thus be seen, that whereas the *toreumus* type is the best represented type in Philippine waters, in American waters this is almost entirely replaced by the *colus* type. The *longicaudus* type, represented by *F. closter,* is most characteristic of the West Indies. It is therefore most probable that the American species were derived from the Philippine species, since the latter are the more primitive.

Localities: Philippine Islands (B. S. 260; M. C. Z. 892; Acad. Sci. Wilson coll.); Isle of Margarita W. I. (Phil. Acad. Sci. Swift coll.); Galapagos? (Acad. Sci.). This specimen was mounted with *F. dupetit-thouarsii,* with which it was wrongly identified. The locality given is typical for that species, but no *F. distans* has ever been reported from it, or from any portion of the west American coast.

FUSUS CLOSTER Philippi.

(Plate III, figs. 1 and 8.)

1850. *Fusus closter* PHILIPPI, Abbildungen, vol. 3, p. 115, pl. 42 (Fusus, pl. 5), fig. 1.
1881. *Fusus distans* var. *closter,* TRYON, Man., vol. 3, p. 58, pl. 36, fig. 132.

The protoconch of this species is of the normal type, the earlier portion smooth and erect, the last half volution with vertical ribs. These are narrow, faint at first, but sharper later on, and from two to tree times their width apart. There are seven or eight of these simple ribs, including the final varix, with which the protoconch ends. The riblets are very gently arched, with the convexity forward.

The conch begins abruptly, with a round-ribbed and spirally striate whorl. The ribs are generally strong, and closely crowded. In one specimen (M. C. Z. 919) a smooth space, somewhat wider than a rib, has been observed between the final varix of the protoconch and the first rib of the conch.

Three revolving spirals occur on the early conch, with an additional one above, *i. e.*, below the upper suture, and another one below the main spirals, sometimes exposed, but generally covered by the edge of the succeeding whorl. The whorls follow each other in a close coil, which causes the sutures between them to be but slightly impressed, and gives to the spire a thick-set, less slender and graceful, and more embracing appearance.

By the end of the first volution of the conch the ribs have become less sharply defined, and the three main spirals have become stronger and sharper, with distinct and relative wide interspaces. Before the end of the second volution of the conch has been reached, the primary spirals have become very sharp on the ribs, and intercalated spirals appear between them. The spiral of the shoulder also becomes more distinct, while at the same time the shoulder takes on a more definite expression. The central one of the three primary spirals forms the shoulder angle. In a young specimen (pl. III, fig. 1) this angulation is continued till after the end of the seventh volution, after which, for the next half volution, the angulation becomes less pronounced and the ribs, which have been slowly becoming fainter, become obsolete. By the time that the ninth volution is reached, the outline of the whorl is practically a uniform curve, which is, however, slightly disturbed, by a subdued central carina or keel, formed by the strong primary spiral. There are, however, no nodes. The lip is strongly lyrate within, the liræ corresponding to the inter-spiral spaces. This variety is comparable to *F. longicaudus-toreumoides* of the *F. colus* series.

In an adult specimen (pl. III, fig. 8) the seventh and eighth volutions are less strongly angulated, the shoulder at the same time being more convex. The undulations of the subsiding ribs, are still faintly visible on some parts of the ninth volution, the shoulder having become so convex as to make a round whorl. Just below the suture, in the last three or four whorls, there is a narrow concavity, due to the formation on these whorls of a pronounced posterior canal.

The upper one of the three primary spirals is still strong on the ninth volution, thus diminishing the accentuated appearance still made by the central spiral. In the tenth volution the whorl is perfectly rounded, and after the manner of *F. dupetit-thouarsii* is strongly lined by the spirals. The ribs have completely disappeared, and the upper portion of the whorl has become slightly concave. Intercalation has become highly compound. The secondary spirals have nearly reached the strength of the primary ones, and are evenly spaced with them. Between these stronger spirals are five or more subequal fine revolving lines. Between these, on the final portion of the shell, are still finer ones, making in all from ten to fifteen fine revolving lines between each pair of coarser ones. These latter are themselves covered with from two to five similar fine revolving lines. All these finer spirals show best on the periostracum, where they are accentuated by fine bristles, which arise at their junction with the growth lines.

The color of the shell is white, that of the periostracum a brownish olive when dry.

In a number of the West Indian specimens studied it was found that the keel and nodes are never developed, in the most accelerated individuals. The whorls remain round, with perhaps only a slight accentuation of the median primary spiral. The ribs continue sometimes into early maturity, but in all these accelerated individuals the last whorls are free from ribs, and without a keel. The whole tendency in the development of these shells is towards the dropping out of the inherited angular stage, and passing from a round-whorled and ribbed to a round-whorled and ribless stage. This accomplished, the *longicaudus* stage is reached.

F. closter was described from a specimen obtained from the Isle of Margarita. The illustration, however, which Philippi gives is not characteristic of the species as represented by large collections from that locality. The chief points of difference between this species and *F. distans* are given by Philippi in the following words: "Von F. distans Lamk. unterscheidet sich gegenwärtige Art durch den gänzlichen Mangel der Kante in der Mitte der Windungen und durch eine verhältnissmässig weit längere Spira" (vol. 3, p. 115). Among the specimens studied several were more slender than the Philippine species, but none as slender as the one figured by Philippi has been observed. If this unusually slender appearance is not due to a wrong perspective in Philippi's figure it is possible that his figure represents a specimen of *F. perplexus* substituted by mistake. His figure may very well stand for the accelerated variety of that species.

Locality: Isle of Margarita, West Indies (Acad. Sci., M. C. Z. 919?; 921? Nat. Mus. 54474).

The specimens of the *closter* type from the Red Sea in the coll. Am. Mus. Nat. Hist. are probably of independent origin.

5. THE FUSUS LONGISSIMUS SERIES.

FUSUS LONGISSIMUS (Gmelin) Lamk.

1780. *Fusus magnus*, etc., CHEMNITZ, Conch. Cat., T. 4, p. 177, pl. 144, fig. 1339.
1780. *Fusus longissimus*, etc., CHEMNITZ, do., p. 183, pl. 145, fig. 1344.
1788. *Murex canditus* GMELIN and *Murex longissimus* GMELIN, Linné, Syst. Nat., edit. 13, T. 1, pars VI, Vermes test., p. 3556.
1822. *Fusus longissimus* LAMARCK, An. sans. vers., t. VII, p. 122.
1842. *Fusus longissimus* KIENER, Iconographie, p. 3, pl. 2, fig. 1.
1847. *Fusus longissimus* REEVE, Iconica, sp. 4.

(If Gmelin is regarded as the authority for the species and not Chemnitz, who was not binominal, *canditus* should be the name of the species, as that precedes *longissimus*. Authors generally have followed Lamarck, however.)

This is one of the largest and most stately species of the genus. It appears to be a direct descendant of *F. nodosoplicatus*. The spire is elongate and slender, from the drawn-out manner of coiling. The first four or five whorls are round and furnished with round ribs, crossed by strong spirals. This stage agrees essentially with *F. turriculus*, and with the young of *F. toreumus*, *F. tuberculatus* and *F. nodosoplicatus*. It occurs as slender as the most slender of these, and its genetic relation to these species can not be questioned. The later of these *turriculus* whorls assume a subdued bicarinate aspect, similar to that found in *F. tuberculatus*. These whorls are soon succeeded by angular unicarinate whorls, on which a flat shoulder and a nodulated keel are developed. The ribs soon disappear, but the tubercles remain and increase in strength. They finally assume the character of rounded bosses which give a strong undulatory character to the keel.

Intercalated spirals appear very early, while the whorls are still round. In accelerated individuals the tubercles become obsolescent on the last whorl, and in some cases disappear almost entirely. The angulation also disappears in many cases, leaving a round ribless whorl. This is most frequently seen in old age individuals, where it is associated with other senile features, such as the separation of the inner lip from the columella, the increase in strength of the posterior canal, and others.

A unique specimen of this species is in the collection of the United States National Museum (cat. 73156). In this shell the *turriculus* stage continues to the tenth whorl. While the very youngest stages agree with *F. turriculus*, the succeeding differ to some extent. In addition to producing a more slender spire, they have broader, more elevated and rounded ribs. The interspaces are scarcely half as wide as the ribs, while in *F. turriculus* the ribs and interspaces are about equal. After the tenth whorl an angulation appears, and the ribs become obsolescent, but tubercles are retained to the end, and these alone mark the last three whorls. They are, however, not so prominent as are those of typical shells. The shoulder is very flat in the last two whorls, being even slightly concave towards the suture. The suture is always marked by a subsutural concavity, and a strong revolving subsutural band indicates a well-developed posterior canal. The final portion of the last whorl shows old age features, having lost the tubercles. Length of shell, 7¾ inches. It consists of about thirteen volutions.

A large specimen in the same collection (7377), which must have been almost eleven inches long, has the last six whorls angulated. After completing two of these volutions the ribs have disappeared, and then for nearly four volutions the flat shoulder, strongly noduled keel, subsutural band and relatively simple spirals characterize the shell. Old age characteristics are shown on the last portion of the last whorl.

Three spirals enter into the composition of the tubercles. The primary and secondary spirals have a uniform size in the adult portion of the shell.

An unlabeled specimen in the collection of the Museum of Comparative Zoölogy (cat. 891) represents a dwarfed form of this species. The spire is somewhat more slender and the knobs are somewhat smaller than in the normal form. Gerontic features, such as rounded whorl, crowded lines of growth, strong posterior canal and loose inner lip, appear fully a whorl earlier than in normal individuals. The spirals are like those of the normal form, being closely crowded and grooved, so as to appear compound.

The differences between this species and *F. nodosoplicatus* are given by Dunker as follows (p. 99):

"A Fuso (Murice) longissimo Gmel., haec nostra species statura multo minore, rostro breviore, costis spiralibus crassioribus minus acutis costisque tuberosis facile distinguenda est. Praeterea anfractus sutura multo profundiore disjunguntur."

Localities: East Indies (Nat. Mus. 73156, 7377); Indian Ocean (B. S. 226); Amboyna (B. S. 6079).

FUSUS UNDATUS (Gmelin).

1780. *Fusus longissimus glabratus angulosus* CHEMNITZ, Conch. Cab., vol. 4, p. 183, tab. 145, fig. 1343.

1788. *Murex undatus* GMELIN, Linn. Syst. Nat., ed. 13, tom. 1, pars VI, p. 3556.

1822. *Fusus incrassatus* LAMARCK, An. sans vert., T. VII, p. 124.

1842? *Fusus longissimus* var. *incrassatus* LAMARCK, KIENER, Iconographie, p. 4, pl. III, fig. 1.

1847. *Fusus undatus* REEVE, Iconica, sp. 12.

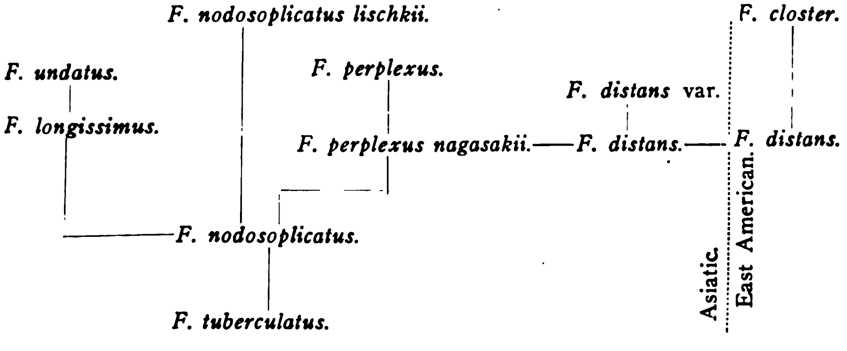
This species is the immediate successor of *F. longissimus*. The spire is long and slender as in the most elongate individuals of *F. tuberculatus*. The early whorls are of the *turriculus* type, round and furnished with round ribs. This is succeeded by a stage in which the young shell has all the characters of a *F. tuberculosus*. This is generally quite short, and is succeeded by a stage in which the characters of the immature shell are those of an adult *F. longissimus*. The ribs increase in prominence on the keel and finally become so strong as to affect shoulder and body alike, producing the strong undulations so characteristic of this species. In this last typical stage of the species the keel appears bulbous from the excessive development of the tubercles. Intercalated spirals appear in the sixth or seventh whorl, sometimes earlier.

A specimen in the collection of the Boston Society of Natural History (cat. 223) represents a rather strongly modified variety of this species. The early whorls are round, furnished with round close-set ribs and marked by both primary and secondary spirals. This stage rather more resembles the *F. reeveanus* type of whorl than that of *F. turriculus.* The angularity of the succeeding whorls is less accentuated in this variety, though the *longissimus* stage is well developed. After this stage the nodes become weaker, the ribs at the same time becoming obsolete. A flat or very gently convex shoulder remains, bordered by a keel free from tubercles.

This is probably an accelerated individual in which the *undatus* stage has been mostly replaced by a keel. On the other hand, it may be a case of premature senescence.

Localities: Pacific Islands (Nat. Mus. 36564, B. S. 220); Ceylon (M. C. Z. 882); East Indies (B. S. 223); Taheiti (Acad. Sci.).

The close relation between the preceding two species and *F. tuberculatus* is shown by the slender spire, which often recurs in the former species. The spire is that of *F. tuberculatus,* and it is particularly well reproduced in the Academy of Sciences' specimen of *F. undatus* Gmel. The relation is also shown in the *undatus* tubercles which sometimes appear on specimens of *F. tuberculatus* (see above). The spire of the specimens of the present series is not always nor perhaps even generally as slender as that of *F. tuberculatus,* and for that reason, as well as for the reason that *F. longissimus* is nearer in form and size to *F. nodosoplicatus,* it is best to regard the species of the present series as derived from *F. nodosoplicatus* rather than from *F. tuberculatus* direct. The relations may be expressed as follows:



6. THE FUSUS BECKII SERIES.

This series is to be traced directly to *F. tuberculatus,* the features of which are preserved in the early whorls of the species of this series.

FUSUS BECKII Reeve.

1847. *Fusus beckii* REEVE, Iconica, sp. 34, 34a (*F. ventricosus* BECK, Mss.).

The only specimen of this species which has come under my observation is in the collection of the Philadelphia Academy of Sciences.

This specimen corresponds so well with Reeve's figure 34b that it might almost be considered the figured specimen. The early whorls are round and rest upon each other, so as to produce a long and slender spire. The ribs are round and about their own distance apart. Intercalated spirals appear in the round whorls. The angulation of the *tuberculatus* stage appears early and quickly becomes prominent. The shoulder becomes strongly concave and reaches up onto the preceding whorl, thus producing a strong posterior canal. The principal spirals are reënforced by secondary ones, which appear on their sides. They become thicker and merge together, thus producing broad band-like spirals. The last whorl is ventricose and irregular, the nodes are still visible on the keel, and the lines of growth are irregular and strongly marked. The inner lip is separated from the columella and a strong posterior sinus is formed.

This shell has all the aspect of a *F. tuberculatus,* in which the spirals have become thickened. The canal has also become somewhat distorted.

Locality: Philippines (Acad. Sci., Dr. T. B. Wilson coll.).

FUSUS OBLITUS Reeve.

1842? *Fusus nicobaricus* KIENER (not LAMARCK), Iconographie, pl. VI, fig. 1.
1847. *Fusus oblitus* REEVE, Iconica, sp. 29.

No specimens of this species have been seen, but judging from the figures of Kiener and Reeve it appears to be a closely related species either to *F. tuberculatus* or to *F. beckii.* It lacks the final ventricose whorl of the last species, but has the same angle of spire. The strong coloration readily distinguishes this species from others of the series.

FUSUS NICOBARICUS Lamarck.

1788. *Murex Colus Nicobaricus variegatus* CHEMNITZ, Neues Conch. Cabinet, vol. 11, p. 241, tab. 160, fig. 1523.
1822. *Fusus nicobaricus* LAMARCK, Anim. sans Vert., t. VII, p. 123.
1847. *Fusus nicobaricus* REEVE, Iconica, sp. 37. Not *F. nicobaricus* KIENER, Iconographie, pl. VI, fig. 1.

This species is closely related to the two preceding, sharing with them the slender spire and other immature features. As many as six rounded *turriculus* whorls have been observed, on the later of which, however, the angulation is suggested by the occurrence of two rather strong spirals at the center of the whorl. The angular whorls are like those of *F. tuberculatus* (or *toreumus*) for a time, but with the suppression of the ribs the tubercles become stronger than those of *F. tuberculatus.* After this the characteristic broad spirals appear which link this shell with *F. beckii.* The nodes also become sharp and project from the keel. The shoulder becomes somewhat concave, and a pronounced posterior canal is developed toward the end. Sometimes this is developed quite early, when its presence is indicated by a strong subsutural band.

The coloration of this shell consists chiefly in a "flaming" of a dark brown hue, and this and the strong spinose tubercles, together with the broad spirals, are the chief characteristics of the shell.

Localities: Loo Choo (Nat. Mus. 1056); East Indies (Nat. Mus. 7378b); Madras (B. S. 222, A. Binney).

FUSUS LATICOSTATUS Deshayes.

1831. *Fusus laticostatus* DESHAYES, Magasin de Zoöl., p. 21, pl. 21 (1830).
1847. *Fusus laticostatus* REEVE, Iconica, pl. VIII, sp. 33a–b.

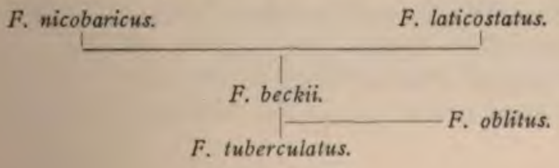
This species is generally of a ruder aspect than the preceding. The first five or six whorls are round, round-ribbed and ornamented with simple spirals which uniformly decrease in strength towards the sutures. Between some of the spirals secondary ones appear quite early. In many specimens the early whorls have a subdued bicarinate aspect from the increase in strength of the spiral below the central one. This finally subsides, and the whorls become unicarinate. At the same time intercalation becomes compound through the separation on each side of the main spirals of fine spiral lines, which later increase in strength. With this the ribs disappear but the tubercles remain. All the spirals become very broad, especially those on the shoulder and the principal body spirals. The secondary spirals also become broader than in any other species of the genus.

A number of specimens in the collection of the Philadelphia Academy of Sciences have the round-whorled stage represented by whorls which resemble those of *F. reeveanus* Phil. rather than *F. turriculus*. They are closely coiled, and the ribs are broad and separated by a mere depressed line. After six or seven of the round whorls the angulation appears and the ribs become obsolete except on the periphery, where they are continued in the tubercles. The spirals increase in thickness mainly through the combination of the secondary ones which arise on the sides of the primary ones.

These specimens may simply represent a variety developed under other than normal surroundings for the species, and are probably not directly related to *F. reeveanus*.

Localities: Indian Ocean (B. S. 263); Ceylon (M. C. Z. 879); Philippines (Acad. Sci.); no loc. (M. C. Z. 31, 881, B. S.; Acad. Sci.); Ceylon (Am. Mus. 8006; 8007).

The relations of the species of this series appear to be as follows:



7. FUSUS DUPETIT-THOUARSII AND ITS ALLIES.

FUSUS DUPETIT-THOUARSII Kiener.

(Plate V, figs. 1-5.)

1842? *Fusus dupetit-thouarsii* KIENER, Iconographie, XIV, p. 5, pl. 11.
1847. *F. dupetit-thouarsii* REEVE, Iconica, sp. 9.

The protoconch of this species is of the normal fusoid type, consisting of about one and one-half volutions. The first whorl is smooth, obliquely erect and the apex partly covered by the succeeding whorl. The last portion of the protoconch is furnished with narrow smooth vertical ribs, more than their own width apart. On the last part of this ribbed portion of the protoconch two faint spirals appear in the center of the whorl. These spirals of the protoconch appear gradually, there being no line of demarkation between this part of the protoconch and that with simple riblets. No varix occurs at the end of the protoconch, but an abrupt change is noticeable. This is the most accelerated type of protoconch yet observed in *Fusus*, the appearance of the spirals placing it ahead of the other species of *Fusus*, except perhaps *F. distans*, in which very faint spirals appear between the last ribs of the protoconch.

The conch begins abruptly, with strong, wide and rounded ribs which are close together, the interspace being reduced to a mere depressed line. Several additional spirals appear, the two central ones, however, being strongest. As they increase in size, they soon give a bicarinate and subangular aspect to the whorl. This is the most characteristic feature of the young shell. Sometimes this bicarinate aspect of the whorls is marked from the beginning, at other times it does not become prominent until the third or fourth whorl. After the appearance of the bicarination the whorls become increasingly angular, the shoulder flatter and the ribs weaker. The bicarinate aspect continues through seven or eight whorls.

After this stage in the ontogeny is reached a divergence occurs which produces several varieties, which might well be considered distinct species.

Var. NODOSUS var. nov.

(Plate V, fig. 1.)

This is the most primitive variety of this species yet observed. It represents the *tuberculatus* (*toreumus*) stage of this series. The upper of the two central carina becomes stronger, and a more pronounced angulation appears. The ribs become obsolescent on the shoulder and on the body, remaining on the periphery only as nodules. These nodules continue to the end in the most typical individuals.

Intercalated spirals appear early, while the whorls are still bicarinate. In the later whorls, when the upper of the central spirals becomes the strongest, the spiral next above also increases in strength, so as to correspond to the weaker of the two. Thus a symmetrical arrangement of spirals is produced, the central one being the strongest, while on either side occurs a weaker one. From this the spirals decrease in strength towards both sutures. Intercalation becomes compound and the interior of the labrum becomes strongly lyrate.

A number of specimens of this variety show a tendency towards obsolescence of the tubercles on the last part of the last whorl. These lead to the keeled variety.

In the collection of the Philadelphia Academy of Natural Sciences occurs a specimen which is unusually slender, but otherwise has all the characteristics of this variety. The early whorls agree precisely with those of typical individuals, but in the later whorls the shoulder is much more inclined. The ribs are obsolete on the last three whorls, which are characterized only by tubercles. This variety is to var. *nodosus* what *F. meyeri* is to the typical form of the species.

The Typical Variety.

(Plate V, figs. 2 and 3.)

This variety is the *colus* type of the series, the tubercles having disappeared, while the central carina continues strong. We have here an acceleration, the earlier stages being condensed. The angular noduled whorls (*toreumus* stage) pass gradually into the smoothly keeled whorls (*colus* stage), the occurrence of both stages on this shell constituting the *colus* type. The keel appears to be produced through a confluence of the nodes, which become elongate and flattened.

The spirals often become highly compound and the various lines being closely crowded, a broad aspect is given to the spirals.

This variety is connected by a *longicaudus-toreumoides* type with the *longicaudus* type (see Pl. V, where fig. 4 represents the former and fig. 5 the latter). In fig. 4 the angular whorls precede the round whorls, thus forming a connection between figs. 3 and 5.

Variety APLICATUS var. nov.

(Plate V, fig. 5.)

This variety represents the *longicaudus* type of this series. The carinated (*toreumus*) stage is wanting, this being a case of acceleration by elimination, as compared with the preceding variety which represented acceleration by condensation. In any normal series the latter always precedes the former. A slight flattening of the shoulder and the strong development of the two central spirals give the early whorls a subangular appearance, but the ribs continue uniformly across this angulation. The *toreumus* stage may then be considered dropped out in this variety, the *colus* stage succeeding the *turriculus*, and being succeeded by the *longicaudus* stage.

The stages of *Fusus dupetit-thouarsii* may be summed up as follow:

A. Protoconch.
  Smooth.
  Simple riblets.
  Riblets and two spirals.

B. Conch.
  1. Round whorled, round ribbed, non-carinate.
  2. Round whorled, round ribbed, bicarinate.
  3. Angular whorled, round ribbed, bicarinate.
  4. Angular whorled, ribless bicarinate-noduled.
  5. Angular whorled, ribless, unicarinate-noduled.
  6. Angular whorled, ribless, noduleless, unicarinately smooth-keeled.
  7. Round whorled, unicarinately smooth-keeled.
  8. Round whorled, keelless.

When stages 1 to 5 occur together, the *toreumus* type is produced (var. *nodosus*). When stages 1 to 6, or 1 to 7 occur together, the *colus* type is produced (typical var.). Omitting stages 3 to 6 inclusive gives us the *longicaudus* type (var. *aplicatus*), though this variety may also be produced by developing stage 6, and even stage 3. Thus these so-called varieties vary again in a perfectly regular and determinable manner.

In its general aspect this shell is readily distinguished from other species of the genus by its thick-set appearance, due to close coiling, and by its proportionally short, slightly sinuous anterior canal.

Localities: Pacific coast of America, Magdalina Bay (M. C. Z. 913); La Paz (M. C. Z. 912); Guaymas, West Coast Mexico (Nat. Mus. 23677, 56338, 32335); Galapagos Islands (Nat. Mus., 48419, dead shell); Puerto Libertad, Mexico (Nat. Mus. 152387); Carmen Island (Nat. Mus. 32334); Cape St. Lucas (Nat. Mus. 13932, 5394); Lower Cal. (Nat. Mus. 34512); no loc. (B. S. 221, M. Z. 911, 910, 909, Nat. Mus. 36565, 56334) (Phil. Acad. Sci.).

FUSUS DUPETIT-THOUARSII var. IRREGULARIS var. nov.

(Plate IV, figs. 5 and 6.)

The protoconch of this species is of the normal *Fusus* type, though appearing relatively larger. In all the specimens seen the apex was bitten by acid, and so the details of the structure of the protoconch could not be made out. Indications of the riblets have been observed, but whether the spirals were present on the last part of the protoconch could not be determined. It apparently ends in a varix.

The conch begins with ribs which are to all appearances bicarinate from the beginning. The whorls are otherwise round. The bicarination gradually gives way to a single carina, formed by the strengthening of the upper of the two spirals. This carination becomes very strong, producing a marked central keel. The ribs become gradually weaker and finally disappear, leaving the last two whorls ribless. The angulation of the whorls generally disappears toward the end. Some of the other spirals increase in strength, thus giving the shell a strong spirally striate appearance.

This species has the form of *F. colus* or *F. longicaudus* with the structure of *F. dupetit-thouarsii.* Its close genetic relation to the latter species can not be questioned, though the manner of coiling and the consequent form is very different. Just what relation this species has to *F. meyeri* Dunker is not clear, as no authentic specimens of the latter have been seen. Judging from the illustrations and descriptions, however, that species is quite distinct from the present one.

Three specimens of this species have been seen, and all are labeled as coming from the East Indies. They were all identified, however, with oriental species of *Fusus,* and the localities given can not be considered as quite trustworthy under the circumstances. Should the localities be correct, this species would constitute an important connecting link between the east- and west-Pacific Fusi.

It will readily be seen that the variations found in *F. dupetit-thouarsii* may again occur in this species. They have not been found, it is true, since the number of specimens examined is so very small, but it is easy to predict that in a large collection of specimens of this species all the normal varieties of the *colus* series will be paralleled.

Locality: (?) East Indies (M. C. Z. 940, B. S. 223). The locality is probably erroneous, the specimens having been labeled *F. longicauda.*

FUSUS MEYERI Dunker.

1869. *Fusus meyeri* Dunker, Novitates, p. 127, tab. 43, figs. 1, 2.
1881. *Fusus meyeri* Tryon, Manual, p. 63, pl. 38, fig. 156.

The essential characteristics of this species are the following, according to Dunker. The slender shell consists of ten to twelve convex volutions which are uniformly white and separated by a deep suture. The upper whorls are strongly ribbed and noduled, but these ribs become weaker in the later whorls, and disappear wholly on the last one. Sharp raised spirals with finer ones between characterize the surface. Dunker states that this species comes nearest to *F. longicaudus,* referring undoubtedly to the form.

A specimen without locality (M. C. Z. 914) is referred to this species, though this reference may be questioned. It is a slender variety of *F. dupetit-thouarsii,* apparently standing between that species and the one described above as var. *irregularis.* The early whorls show the angular bicarinate stage merging later into an angular bicarinate ribless stage, which later is replaced by a unicarinate stage, in which the ribs are represented chiefly by nodules. These disappear also, and a carinated stage remains. The carina slowly disappears, and the remaining whorls are round and marked only by strong spirals.

FUSUS AMBUSTUS Gould.

1853. *Fusus ambustus* GOULD, Bost. Journ. Nat. Hist., vol. VI, p. 385, pl. 14, fig. 18.

The protoconch of this species is fusoid with narrow vertical ribs on the last portion. No distinction is shown in the specimens seen between the protoconch and the beginning of the conch, though in one specimen there appears to be an indication of a varix.

The conch appears to begin with three ribs which are slightly wider than those of the protoconch, but are not like those of normal young *Fusus*. It may be, however, that these ribs still belong to the protoconch, in which case the varix observed represents only a strengthened rib of the protoconch. Between the ribs last mentioned as perhaps belonging to the protoconch occur fine spirals, thus allying this species very closely to *F. dupetit-thouarsii*.

The whorls of the conch are at first round and the ribs uniform. Then the central spiral becomes strong and, soon after, the spiral next below becomes equally strong, thus producing a bicarination. The spiral below the center does not quite reach the strength of the central one, and the one above the center often becomes moderately strong, thus producing an obscure tricarination.

The largest specimen seen is nearly two inches long. The aperture and anterior canal combined equal in length that of the spire. The canal is slightly flexed.

There is a certain resemblance between the young of this species and that of *F. dupetit-thouarsii*. In the latter, however, the bicarinate aspect is more strongly marked, while in *F. ambustus* the bicarinate aspect is faint, owing to the strengthening of the spiral next above the center. Thus the angularity of the latter species is more normal, the central spiral being strong, while those on either side progressively decrease.

In one specimen where the inner lip is well developed, six faint columellar plications occur, which are disposed at a different angle from that of the spirals on the spindle, and not, therefore, produced by them. The influence of the spirals on the lip is seen, however, in the upper part of the aperture. In some of the other specimens faint indications of columellar plications occur, which are situated too far back to be due to the influence of the spirals. Similar faint plications occur on the young of *F. dupetit-thouarsii*.

Localities: West coast North America. Lower Cal., San Lucca cove (Nat. Mus. 32344); Topolobampo (Nat. Mus. 150864); Mazatlan (Gould).

FUSUS NOVÆ-HOLLANDIÆ Reeve.

1847. *Fusus novæ-hollandiæ* REEVE, Iconica, sp. 70.

The protoconch of this species is swollen and of the normal type throughout, with about two third volutions ribbed.

The conch begins with slightly angulated whorls which are furnished on the center with two strong spirals, thus giving the shell from the first a bicarinate aspect. The shoulder is furnished with two strong spirals, between which and the two central spirals are numerous fine intercalated spiral lines. The ribs in some specimens are at first weak, but subsequently become stronger, causing a subspinosity on the angle where they cross the spirals.

In a specimen from Port Jackson (Nat. Mus. 91743) intercalated spirals do not appear until the fifth whorl. In the sixth whorl a strong slightly convex shoulder occurs, which is ribbed and striate. The lower of the two central spirals is less prominent in this whorl than the upper, and the shell takes on a unicarinate appearance. This unicarination is visible in the two succeeding whorls, though it is less sharp. It also continues into the last whorl. The ribs finally disappear, and the last part of the last whorl is characterized by a slight angulation formed by a somewhat stronger central spiral.

The specimen here described agrees in all determinable characters with Reeve's figure of this species. It will be seen that there is a close similarity between this species and the young of *F. dupetit-thouarsii,* especially of the more slender varieties, in which the whorls are less embracing.

In the collection of the National Museum is a young shell which, with a number of specimens of *F. australis,* is labeled as coming from South Australia. The specimen is identical with the young of *F. dupetit-thouarsii* from the west coast of America, and it is possible that this specimen has been misplaced. If the locality is correct for this specimen, then it must be regarded as the young of *F. novæ-hollandiæ* (the only species with bicarinate young found in those waters). The canal of this specimen is strongly flexed, a character of *F. dupetit-thouarsii,* but probably not characteristic of *F. novæ-hollandiæ.*

Two specimens in the Haines collection of the American Museum appear to agree closely with Reeve's figures. The protonch is perfect and normal. Bicarination of the young shell is somewhat obscured by the strength of the spirals on the shoulder. Intercalation begins in the fifth or sixth whorl. An angulation appears toward the end of the volution where the shoulder becomes flat, and the ribs to some extent obsolete. In the nepionic and neanic stages the ribs are broad, and the interspaces mere depressions. In the final whorl the ribs become much swollen on the periphery.

F. spectrum may be a *colus* type of this series.

Another specimen labeled *F. longissimus* has carried the development a volution further (17364 Haines). The knobs become faint and the aperture is gerontic.

Localities: Port Jackson, Australia (Nat. Mus. 91743, 16625a?); Tasmania (Nat. Mus. 124169, 125169, 91744; M. C. Z. 901).

The relations of the species of this series may be expressed as follows:

F. dupetit-thouarsii irregularis.——*F. meyeri.*——*F. dupetit-thouarsii aplicatus.*
|
F. dupetit-thouarsii.

F. spectrum. *F. dupetit-thouarsii nodosus.*---*F. ambustus.*

F. novæ-hollandiæ.

8. THE FUSUS LONGIROSTRIS SERIES.

The shells here classed together all belong to the Pliocene of Italy, where they are associated with the species of the *F. rostratus* series, with which they appear to be genetically related.

FUSUS LONGIROSTRIS (Brocchi).

(Plate VI, figs. 1-3.)

1814. *Murex longiroster* BROCCHI, Conch. Foss. Subap., vol. 2, p. 418, tav. 8, fig. 7.
1856. *Fusus longirostris* HÖRNES, Foss. Moll. Tert. Wien, p. 293, pl. 32, figs. 6-7 (with bibliography).

The protoconch of this species (pl. XVII, fig. 2 and 3) is unusually accelerated, consisting of at least two complete volutions, the second one with fine riblets throughout. In some specimens, however, the protoconch appears to be of the normal type. No indications of spirals on the protoconch have been noticed, but most of the specimens were so poorly preserved as to leave this point unsettled.

The conch begins with round whorls which are furnished with round ribs and with spirals. These rounded-whorls continue for two or three volutions, though in accelerated individuals like specimen, fig. 1, pl. VI, this stage is reduced to less than one volution, or may be dropped out altogether. Early during the round-whorled (*turriculus*) stage two spirals become strong on the center of the whorls, causing a bicarination. This is in all respects similar to the bicarinate stage of *F. dupetit-thouarsii.*

In the next succeeding stage the shoulder becomes flattened, while the spirals remain faint with the exception of one on the shoulder. The shoulder spiral nearest the peripheral carinæ becomes strengthened, so as to change the bicarinate into a tricarinate peripheral angulation.

The middle spiral (the upper of the two) finally becomes the strong central carina. The spirals on the body of the whorl are stronger than those on the shoulder.

The shoulder gradually becomes concave, and the ribs on it become gradually suppressed. They continue, however, on the shoulder angle, where they form strong but blunt and rounded nodules. Intercalated spirals appear on the shoulders in the third whorl.

A number of young shells in this stage have been found, but no adult shell of this series has been seen in which the development ceased at this point. If such were found, as may not be improbable, it would constitute the *toreumus* type of this series.

The next stage in the development of this species, is the *colus* stage, characterized by the loss of the ribs, as well as the nodules on the periphery. The shoulder, however, remains concave and no strong single spiral occurs, but rather several which produce a somewhat undefined angulation.

Figures 2 and 3 of plate VI represent this species in its typical form. In figure 2 the last whorl and a half are ribless, the shoulder is concave and the body of the whorls marked by strong spirals. This is slightly more accelerated than Brocchi's type, in which the ribs continue onto the last whorl. Figure 3 shows a specimen which is somewhat more accelerated than the preceding, and may be considered as representing the *toreumoides* type of this series. It has two ribless whorls, in the last of which the concavity of the shoulder is less marked. The *toreumus* stage is faint, though still visible.

Young specimens of this species which have been obtained from the Vienna Basin appear to be less accelerated than those from Italy. The round whorls continue longer and the ribbed and noduled whorls are more pronounced. It may be that the more primitive *toreumus* type occurs in the Vienna Basin. The specimens figured by Hörnes from that district (pl. 32, figs. 6, 7) are more primitive than the majority seen from the Italian localities. The ribs persist to the end and the shoulder is only faintly concave, there being only a moderate peripheral angulation.

The specimen illustrated in Hörnes' fig. 5, must be referred to *F. castelarquatensis,* though the early whorls show a faint peripheral angulation which is not found in the typical specimen.

A young specimen of this species from Bordighera, Italy (M. C. Z. 27797), shows a less degree of acceleration than is found in most individuals. The protoconch is slightly depressed, and consists of something over one and a half volutions. The last portion has smooth vertical riblets, rather far apart and without indications of spirals. The protoconch terminates in a varix.

The conch begins abruptly, with round strongly ribbed whorls, and strong spirals. Two of these are prominent from the beginning, but the shoulder can scarcely be called flattened. In the early whorls the ribs are strong and continuous from suture to suture, though most pronounced at the periphery. They are less than their width apart. The whorls continue rounded until after the fifth one, when the shoulder concavity becomes sufficiently pronounced to cause a peripheral angulation. The costæ also become faint and finally disappear on the shoulder, while numerous fine spirals make their appearance on this portion of the whorl.

A sectioned specimen in the collection of the Museum of Comparative Zoölogy has the characters of Brocchi's type of *longirostris, i. e.,* the ribs continue onto the last whorl of the adult shell, although the whorls are rounded. The section shows well a number of apical septa, a feature observed in almost every gastropod of this class which has been seen. In the present specimen, the last septum occupies the seventh (?) whorl, beginning three and one half volutions from the tip and extending backwards half a volution. The shell is thickened from within by the addition of layers which cover the liræ and other internal markings. The septa are formed by the separation of these layers from the shell and by a rapid constriction of these separated portions, thus forming a bag- or cornucopia-shaped end. This is generally rounded in the final portion, but sometimes it is angularly pointed. This end always rests on the bottom of the whorl. Six septa have been recognized, and there are probably two or three more which are obscured by the thickening of the shell or destroyed in the sectioning.

Localities: Bodighera, Italy (M. C. Z. 27797); Valleys about Luganiano, Castello Arquato, etc., Asti (M. C. Z. 1217, 27798?, 1223); Voslau Vienna Basin (B. S. 5138); numerous localities in Vienna Basin (Hörnes).

Horizon: Pliocene.

FUSUS CASTELARQUATENSIS sp. nov.

(Plate VI, fig. 4)

Comp. Hörnes *Fusus longirostris,* Foss. Moll. Tert. Wien, pl. 32, fig. 5.

This species is to *F. longirostris* what *F. longicaudus* is to *F. colus.* It represents, therefore, the *longicaudus* type of this series. The earliest stages are those of *F. longirostris,* the whorls being round, bicarinate on the periphery, though not angular and noduled as in the young of the preceding species. The shoulder, however, becomes concave and the ribs begin to disappear toward the sutures. The last three whorls of this shell are ribless, round, except for a gentle concavity on the shoulder, and to all appearances quite smooth. There are, however, strong spirals which are but little raised above the surface of the shell and which are subequally spaced. Between them are from five to three fine revolving lines. The whole surface ornamentation is subdued. A young specimen, locality unknown, occurs in the collection of the American Museum of Natural History. Hörnes' specimen from the Vienna basin (fig. 5) is much less accelerated than the type of the species here illustrated. It may, however, be referred to the same species.

Locality: Castelarquato, Italy (M. C. Z. 27795); Vienna Basin (Hörnes).

Horizon: Pliocene, Subapennine stage.

FUSUS INÆQUICOSTATUS Bellardi.

(Plate VI, figs. 5 to 7.)

1871. *Fusus inæquicostatus* BELLARDI, Moll. terr. Terz. Piedmont, p. 131, pl. 9, fig. 3.

This species comprises in itself a distinct series of shells which, though connected by intermediate forms, show nevertheless such marked stages that a number of distinct species could be made. The typical form of Bellardi comes nearest to fig. 6, pl. VI, while fig. 7 is further advanced, being a good gerontic representative of this series. Fig. 5 connects this series with *F. longirostris.*

Beginning with the typical form of *F. longirostris,* we derive this species by increasing the concavity of the shoulder, and the elevation of the shoulder-angle. A distinct revolving band is formed, bounded by the central and the upper primary spiral. This shoulder-angle or ridge becomes more and more elevated, and the shoulder becomes more depressed, so as to produce a flattening which finally culminates in a depressed canal. The shell also becomes compactly coiled and in consequence has a thickened irregular appearance which suggests *Cyrtulus serotinus,* or the general characters of the advanced species of *Clavilithes.*

This species in its extreme form represents the gerontic characteristics found in terminal members of most of the series of this class, and which consists of a loss of the graceful form from a loose wrapping round, as it were, of the later whorls about the earlier ones which still retain the normal form and features. These later whorls generally reach up on to the preceding ones, which they cover up in part or sometimes wholly.

Localities: Castelarquato and places about Asti, Northern Italy (M. C. Z. 27796, 1216).

Horizon: Pliocene, Subapennine stage.

Fusus longirostris and its allies have many characters in common with *F. dupetit-thouarsii* and its allies, especially in the accelerated protoconch, the bicarination of the young, which is not characteristic of other species of *Fusus*, except the closely related *F. novæ-hollandiæ*, and the general form and character of the spindle. It is not improbable that *F. longirostris* is in the line of ancestry of *F. dupetit-thouarsii* and its allies. This suggests that the migration of the ancestors of the latter species occurred in Tertiary times, a supposition which needs for confirmation the finding of Tertiary species related to *F. dupetit-thouarsii* in American deposits. In this connection the following species is suggestive, but not conclusive.

FUSUS GABBI sp. nov.

1860. *Fusus henekeni* GABB, Journ. Acad. Nat. Sci. Phil., 2d ser., vol. 8, p. 350, pl. 45, fig. 31.

This species was originally described by W. M. Gabb, who referred it to *F. henekeni* Sowerby (see p. 19). It is, however, very distinct from that species, nor can its relation to *F. dupetit-thouarsii* be considered as proven. Gabb says it suggests "irresistibly" this species, but in this I differ from him most decidedly, though I admit that the general form and proportions are not unlike those of that species. The exact relation of *F. gabbi* to other species has not been determined, since the apex and early whorls of the only specimen known are in part broken away and in part badly worn. It may be a descendant of *F. longirostris* or it may be related to *F. henekeni*, but for neither of these suppositions is there any good evidence.

The youngest whorls observed are round, rather more embracing than *F. henekeni*, and have round and rather distant ribs. When still quite young the whorls become angulated at the periphery, this angulation being due to the strengthening of the central spiral. The shoulder becomes flattened and the ribs become obsolescent towards the sutures. Simultaneous with the angulation intercalated spirals make their appearance. On the final whorl, the ribs are reduced to mere undulations, the lip showing senile characteristics. These are accompanied by an irregular thickening of the lip and the formation of strong liræ within. Strong plications occur on the columella, but these appear to be due mainly to the influence of the columellar spirals, which are not obliterated by resorption or covered by a thick inner lip.

If this species could be shown to have ancestral relations to *F. dupetit-thouarsii* it would be of great interest, as showing the way by which the ancestors of that species reached the new world from their place of origin in the old. Such relationship is, however, not indicated, and we are at present left without any clue to the origin of *F. dupetit-thouarsii*, the most important American species of the genus.

Locality: Costa Rica (Phil. Acad. Sci. Gabb's type).

Horizon: Pliocene ? (Gabb).

FUSUS CLAVATUS (Brocchi).

(Plate VIII, fig. 15, see also fig. 13.)

1814. *Murex clavatus* BROCCHI, Conchiologia fossile subapennina, T. 2, p. 418, tav. VIII, fig. 2.

This shell differs from *F. longirostris* chiefly in its rounded whorls which persist throughout. The whorls are round and furnished with simple rounded ribs, which in the young extend from suture to suture, but in the adult are only marked upon the periphery. The first three or four volutions have simple spirals, though a single intercalated spiral appears next to the suture in the third volution. The primary spirals are sharp and pronounced, the secondary ones very much smaller. In the last whorl very fine tertiary spirals appear.

Several varieties may be recognized. In Brocchi's type specimen the ribs appear to continue to the end of the final whorl, while the shoulder becomes slightly depressed. In a number of specimens from Asti and Castelarquato the whorls continue round, but the ribs disappear on the last volution, the spirals, however, remaining strong (fig. 15). In other specimens the shoulder becomes more depressed, the spirals stronger and the whole shell more robust (fig. 13). This leads to *F. etruscus*.

Localities: Asti (M. C. Z. 1213, 1215); Stazzano, Italy (M. C. Z. 1225); Castellarquato (M. C. Z. 1221).

Horizon: Pliocene (?), Subapennine stage.

The following variety was described (but not figured) by Basterot:

FUSUS CLAVATUS var. β Basterot.

1825. *Fusus clavatus* var. β BASTEROT, Mem. Soc. Hist. Nat. Paris, t. 2, p. 63.

"Testa transverse cingulata, striis filiformibus fere duabus interpositis; carina nulla; anfractibus rotundatis."

. . . " La var. β se trouve aux environs de Bordeaux."

This variety is the one figure on Plate VIII, fig. 15, while the variety figured in fig. 13 (var. γ) is accelerated. The type specimen represents an intermediate form.

FUSUS ETRUSCUS Pecchioli.

(Plate VIII, fig. 14.)

1862. *Fusus etruscus* PECCHIOLI, Di un nuovo fossile delle Argille Subapennine, Firence (with plate).

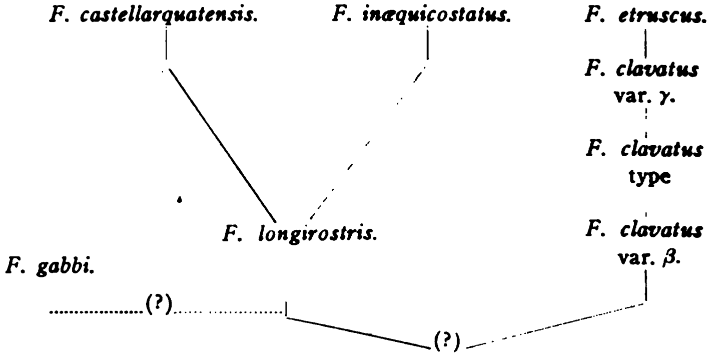
This large and robust species differs from *F. clavatus* in the angulation and nodulation of the whorls, and the very coarse spirals. The ribs persist through the last whorl, but are more of the character of undulations. Where crossed by the strong spirals they are coarsely nodulated. Lip strongly lirate.

This species bears the same relation to *F. clavatus* that *F. inæquicostatus* bears to *F. longirostris.* Both this species and *F. clavatus* may be regarded as members of a lateral branch from the radical of the *longirostris* stock.

Locality: Asti in Piemont (M. C. Z. 1214); Senese (Type in Regio Museo di Firenze).

Horizon: Subapennine stage (Etage 27), Pliocene.

The relations of these species may be expressed as follows:



THE FUSUS ROSTRATUS SERIES.

This series is represented in the Miocene and Pliocene of the Mediterranean region and by species living in the Mediterranean Sea to-day. The Tertiary representatives show a greater range of variation than do the recent ones, judging from a fairly extensive series of specimens seen and from published figures and descriptions. Several species may be distinguished both among the recent and the fossil forms, the gradation between them being, however, complete.

PLIOCENE SPECIES.

FUSUS ROSTRATUS (Olivi).

(Plate VII, figs. 4–10.)

1792. *Murex rostratus* OLIVI, Zoologia Adriatica, p. 153.
1856. *Fusus rostratus* HOERNES, Foss. Moll. Tert. Becken Wien, p. 290, taf. 32, fig. 2 (with synonymy).
1871. *Fusus rostratus* BELLARDI, Moll. Terz. Piem., etc., pt. 1, p. 129, pl. 9, fig. 2.

The protoconch of this species is of the normal *Fusus* type, ending abruptly with a varix. The riblets on the last portion of the protoconch are narrow and rather far apart, leaving interspaces which are more than twice the width of the ribs.

The conch begins abruptly with round whorls furnished with strong round ribs which extend from suture to suture, and are crossed and cancellated by strong spirals. In the succeeding whorls the ribs increase in strength, but continue to extend across the entire whorl. The central spiral increases slightly in strength, without producing an angulation. The shoulder also remains rounded. Intercalated spirals appear early, but do not reach the strength of the primary spirals. In some cases this intercalation becomes compound. Towards the end the ribs either grow stronger, leading to such forms as fig. 5, pl. VII, or else become obsolete, leading to such species as *F. semirugosus* Bell. et Mich. (Pl. VIII, fig. 9–12) and *F. cinctus* Bell. et Mich.

In general aspect, and particularly in the character of its ribs, this species is not unlike some varieties of *Clavilithes rugosus,* this Eocene species having attained the same degree of development which *F. rostratus* reaches in the Pliocene.

From the round-whorled variety, in which the strengthening of the central spiral alone marks the beginning of a peripheral angulation of the whorls, a branch leads to the strongly angulated forms which are typified by *F. bredæ* Mich. Even within the limits of the present species angular varieties may be recognized, in which the shoulder becomes somewhat flattened and the central spiral transformed into a keel (see pl. VII, fig. 4). Not infrequently the last whorl returns to the more primitive rounded condition with (usually) swollen ribs, which is probably a gerontic feature. Figure 5, pl. VII, illustrates a specimen in which this feature has been developed to an extreme degree. As far as the penultimate whorl, this specimen shows all the characters of an angular variety of *F. rostratus*. These features come to a sudden stop at a point which evidently marks an old break or injury to the shell. This resulted in the modification of the last whorl and ribs, which have passed into a condition in which they resemble the gerontic features of the last portion of a normal old age individual. The whorl itself is rounded and has strong rounded ribs which are more of the nature of regular folds than of ribs. These folds are separated by wide interspaces and extend from suture to suture. Towards the end they become strongly bulging, especially at the periphery of the whorl, where the last one of the ribs projects about a quarter of an inch. While at first these are true folds in the shell, affecting the interior as well as the exterior, they quickly become solid by the deposition of secondary calcareous material, so as to be no longer visible on the inside of the whorl. The spirals are strongest in the center of the whorl, where three of them are especially prominent. They decrease in prominence towards the sutures. Intercalation of spirals is compound.

This specimen shows that premature gerontism may be induced by injury, the resulting growth being similar in all respects to the normal gerontic growth in an old individual.

Figures 9 and 10 illustrate other forms in which the round swollen ribs are strongly developed. These approach closely to the variety *bononiensis* Foresti (Cat. Moll. Foss. Plioc. Bolognese, p. 32, tav. 1, fig. 10, 11), in which this feature is carried to excess.

Localities: Italy; Castellarquato, Luganiano, and Asti (M. C. Z. 1448, 1449, 1450, 1451); Orciano (M. C. Z. 27805–Pl. VII, fig. 5); Palermo (M. C. Z. 27807); Stazzano (M. C. Z. 1556); Sicily (Desh.); France; Touraine (Desh.); Vienna Basin (Hörnes).

Horizon: Miocene and Pliocene (?) Subapennine formation, Etage 27, north Italy.

FUSUS BREDÆ Michelotti.

(Plate VII, figs. 1–3, Plate XVII, fig. 4.)

1814. *Murex rostratus* BROCCHI, Conchiologia Foss. Subapen., p. 416, tav. 8, fig. 1.

1847. *Pleurotoma bredæ* MICHELOTTI, Foss. Mioc. Italie, p. 300, pl. 17, fig. 7. Not *Fusus bredæ*, ibid., p. 398, pl. X, fig. 8.

1856. Compare *F. rostratus* HÖRNES, Foss. Moll. Tert. Beck. Wien, p. 291, p. 32, fig. 1, and *F. austriacus* HOERNES and AUINGER, Gast. Oestreich Ungarn., p. 251, pl. 31, fig. 3. Not *F. bredæ* HÖRNES, Foss. Moll. Tert. Beck. Wien, p. 284, pl. 31, fig. 1.

1872. *Fusus bredæ* BELLARDI, Moll. Terr. Terz., pt. 1, p. 128, pl. IX, fig. 1, 1b.

This species represents an extreme specialization of a type descended from *F. rostratus.* The specialization lies chiefly in an accentuation of features, shown in progressive individuals of *F. rostratus,* but never very strongly developed. *F. bredæ* is a progressive type which has succeeded in carrying on the line of development begun by a certain section of *F. rostratus,* but generally abandoned when, with old age, the individual reverted to the more primitive and senescent condition of round whorls with swollen ribs. *F. bredæ* is an accelerated type when compared with *F. rostratus.* The features which in the latter species appeared only in the adult are in the former assumed and passed through quite early in life.

The protoconch is of the normal *Fusus* type, but somewhat depressed. It comprises one and a half volutions and ends with a strong varix. It is smooth except for the last portion of the last whorl, which is marked by narrow faint vertical riblets, which are rather widely separated (pl. XVII, fig. 4).

The first whorls of the conch are rounded and bear coarse rounded vertical ribs, separated by less than their width, and crossed by closely set rounded spirals. The two central spirals quickly become strengthened, thus giving the whole an angular character. Intercalation of spirals begins with the fourth volution of the conch.

The upper one of the two central spirals becomes stronger than the lower one, while at the same time the ribs of the shoulder diminish in strength, and the shoulder itself is flattened. The upper spiral in the adult stage becomes a spinous carina, the spines vertically flattened and very strongly marked. In this stage the shoulder in the typical specimens is flattened and the spirals on it are numerous, fine and closely crowded.

Gerontism is marked in this species, as in the preceding, by a return of the whorl to the rounded, round-ribbed, primitive condition with the outer lip drawn into a strong rounded fold and the inner lip separated from the columella.

A very large shell apparently closely related to this species was figured by Hörnes (pl. 32, fig. 1) as a variety of *F. rostratus*. In this the asperations on the periphery are very strong, and the shoulder is moderately convex. There are about two and a half volutions more than in fig. 3, pl. VII, which resembles it. The specimen, with another, was found in the lower Tegel of Baden in the Vienna Basin, a formation considered of Miocene age. This species was afterwards separated by Hoernes and Auinger as *Fusus austriacus*.

Localities: Italy, Castelarquato; Asti in Piemonte (M. C. Z. 1452–1455, 27806); Baldissera, Grangia (Bellardi).

Horizon: Pliocene Subapennine formation, Etage 27. Also recorded from Miocene med. (Bellardi).

FUSUS SEMIRUGOSUS Bellardi and Michelotti.

(Plate VIII, figs. 9–12.)

1840. *Fusus semirugosus* BELLARDI ET MICHELOTTI, Saggio Orittografico, p. 13, tav. 1, fig. 13.

1856. *Fusus semirugosus* HÖRNES, Foss. Moll. Tert. Beck. Wien, p. 294, pl. 32, figs. 8–10 (with bibliography).

This is an advanced species of the *rostratus* stock, in which through loss of ribs in later whorls, a phylogerontic stage of development has been reached. It represents the terminal member of a lateral branch from *F. rostratus*.

The protoconch is fusoid, consisting of one and one half volutions ending in a prominent varix, and ornamented in the last half volution by fine closely set vertical riblets, which in some specimens are only seen with difficulty. The whorls of the conch are rounded with rounded vertical ribs, separated by concave interspaces of about equal width. The spirals, which appear suddenly after the end of the protoconch, are sharp, subequally distant and decrease gently in thickness towards the sutures. The interspaces are wider than the spirals. Intercalated spirals appear in the fourth volution of the conch. A slight angularity with a faint flattening of the shoulder appears in some of the later whorls, there being some variation in the age of the individual when these appear. A faint concavity occurs just below the suture, delimiting a subsutural band, which becomes quite prominent in the later whorls and indicates the presence of a posterior canal throughout a greater part of the life of the individual. The ribs become obsolete on the fifth or sixth whorl of the conch, after which the whorls are only marked by faint spirals. On the ribless whorls the lines of growth are of about equal strength with the spirals, thus producing a cancellated appearance.

Localities: Sicily, Palermo (Coll. Wag. Free Inst. Sci. 4673); no loc. (M. C. Z. 1226); Torino (Bell. et Mich.); Voslau and Vienna Basin; rare (Hörnes); Lapugmy (Neugeboren).

Horizon: Lower Tegel, Miocene of Vienna Basin (Hörnes), Pliocene of Italy.

Hörnes figures a number of specimens from the Vienna basin under this name. In some of these the carina persists longer, thus recalling the figure of *F. cinctus* given by Bellardi and Michelotti.

FUSUS CINCTUS Bellardi and Michelotti.

1840. *Fusus cinctus* BELLARDI AND MICHELOTTI, Saggio Orittografico, p. 12, tav. I, fig. 15.

This is apparently a closely related species which occupies an intermediate position between *F. rostratus* and *F. semirugosus*. It retains the carina or keel in all but the final whorl. The relation of these two species to *F. rostratus* was pointed out by the authors cited.

Locality: Asti.

Horizon: Pliocene.

RECENT SPECIES OF THE FUSUS ROSTRATUS SERIES.

FUSUS FRAGOSUS Reeve.

(Plate VII, figs. 12, 13.)

1848. *Fusus fragosus* REEVE, Iconica, pl. 19. fig. 71.
Compare *Fusus rostratus* REEVE, Iconica, pl. 14, fig. 55.
Compare *Fusus rostratus* TRYON, Man. Conch., vol. III, p. 61.

This is the most primitive existing member of this series. It is even more primitive than any of the species so far described from the Pliocene beds, though it is to be presumed that this species existed in Pliocene times.

The protoconch is less elevated than in the *colus* series, the whorls being somewhat compressed. The early portion is smooth, the later furnished with smooth vertical riblets. The total length of the protoconch is about one and one half volutions. The whorls of the conch are round in all stages, furnished with rounded ribs which in the earlier whorls are less than their width apart, but on the body whorl are separated by interspaces nearly twice as wide as the ribs. The spirals are strong and nearly uniform in the early whorls; the central one increases in strength in the later whorls, but never becomes strong enough to produce an angulation. Intercalated spirals appear in the fifth or later whorls of the conch.

Locality: Unknown (M. C. Z. 922).

Habitat: Mediterranean, 20 to 100 fathoms on corals and rocks.

In fig. 11 of plate VII a specimen from Palermo is shown which may be derived from this species, though from the imperfection of the young stages it is not possible to make a thoroughly satisfactory identification. In general, the immature whorls agree with those of *F. fragosus,* except that intercalated spirals occur only in the adult. The last whorl is without ribs except just behind the aperture where they may recur. The spirals are strong and subequal. The canal is rather short. If this veriety really belongs to the present series it represents the *semirugosus* type among the existing members.

Locality: Palermo (M. C. Z. 926, 927).

Reeve's species 55 forms a connecting link between *F. fragosus* and *F. rostratus.*

FUSUS ROSTRATUS (Olivi).

(Plate VII, figs. 15 and 16.)

1792. *Murex rostratus* OLIVI, Zoölogia Adriatica, p. 152 (Ginanni Adriatica, t. 2, tav. 7, fig. 56).

1883. *Fusus rostratus* KOBELT, Europäische Meeresconchilien, p. 52, pl. 9, figs. 6–10.

The original description is as follows:

"M. Stromdo di prima specie di colore biondetto formato ad angoli, e tutto recoperto di firmissimi cordoncini, che gli girano pel traverso.

"Abita diversi fondi, e predilige gli arenacei: Frequente.

"Si trova ancora lo *Strombo di seconda spezie rigato, e papigliato, di rostro curvo edi colore che inclina al carneo* dello stesso Gina Ginanna *tav. 7, fig. 57,* ed um'altra varieta piu ventricosa a coda *replicata,* e corta."

Olivi makes the type of this species the specimen figured by Ginanni in his Adriatica, t. 2, p. 8, tav. 7, fig. 56. I have not seen this publication, the date of which is 1774, but from the description cited it appears that the typical form is that with the carinated or angular whorl, as shown in figures 22 and 23 of plate VII. This is the common variety and may be regarded as typical.

Occasionally the central carina becomes strong, flat and projects beyond the others on the body whorl, being especially prominent where it crosses the round bulging ribs. The strengthening of the central spiral occurs at varying ages, sometimes in accelerated individuals appearing quite early. In such cases the body whorl often has an angular aspect, though the shoulder remains convex. (No recent species of this series with flat shoulder has been found among the collections examined, nor, so far as I can find, has any been described.)

In such accelerated individuals the intercalated spiral appears in the fourth or even the third whorl of the conch. In some specimens the intercalation becomes multiple on the body whorl, while the carination becomes pronounced and vertically flattened as in the most advanced Pliocene species. The shoulder, however, never loses its convexity as it does in the fossil species, though it may become considerably depressed (fig. 21). Occasionally the ribs become obsolescent in the last portion of the body whorl. The more accelerated individuals approach *F. cœlatus* Reeve (Iconica, pl. 8, figs. 35 *a–b*), which appears to be a variety of this series in which the spirals and ribs are both strongly developed, producing a striking appearance.

Locality: Mediterranean (M. C. Z. 923, 924, 925).

Habitat: 20 to 100 fathoms on corals and rocks (Tryon).

In the collection of the Academy of Natural Sciences in Philadelphia are a number of specimens labelled *Fusus rostratus* var. *carinata.* The specimens are from Greece and represent the most accelerated recent types of the series yet seen.

The protoconch is of the normal *Fusus* type with numerous crowded vertical riblets on the final portion and ending abruptly with a varix.

The conch begins with round whorls furnished with broad round ribs which are crossed by strong revolving lines of which five are usually visible above the suture, the fifth being often covered in part by the succeeding whorl. In the third volution, the central spiral develops into a prominent carina, the shoulder at the same time becoming flattened. The ribs also become more widely separated until they are about twice their width apart or more. They also become obsolete on the upper portion of the shoulder. Intercalation begins with the appearance of the angulation. The central carina attains almost the sharpness of that of the milder varieties of *F. bredæ* as shown in fig. 1 of pl. VII. The flattened shoulder and the prominent intercalations make the resemblance in some cases very marked.

It is a remarkable fact that the Pliocene varieties appear on the whole to be more accelerated than the recent ones. The flattening of the shoulder is rare in the recent varieties, nor have any specimens been seen in which the keel is as strong and sharp as that of *F. bredæ.* Furthermore, gerontic types like *F. semirugosus* are not as yet known in the recent fauna, though common in the Tertiary. If it is proved to be a fact that the Tertiary species are more specialized than the modern ones, for the determination of which large collections of recent and Tertiary specimens from all parts of the Mediterranean region are required, the explanation may be found in the independent development of the Tertiary series in a circumscribed provincial area. The highly specialized species are, so far as I am aware, recorded only from the Piedmont district, and the suggestion presents itself that the separation may have been due to the influence of the forming Apen-
hain.

FUSUS CŒLATUS Reeve.

(Plate VII, fig. 17.)

1847. ***Fusus cælatus*** Reeve, Iconica, pl. 8, sp. 35.

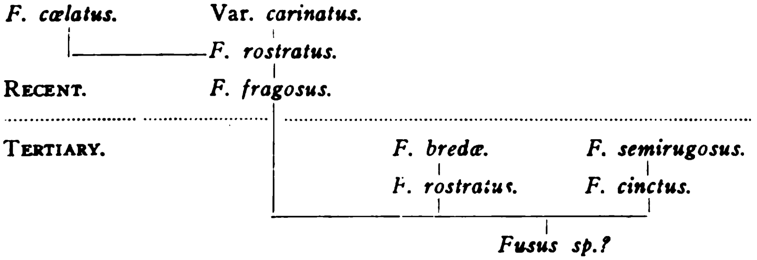
A specimen in the collection of the Philadelphia Academy of Sciences probably represents this species. The figured specimen from the collection of the Museum of Comparative Zoölogy also approaches this species.

The protoconch is fusoid, somewhat depressed and consists of only about one and a third volutions. The last third is furnished with riblets.

The conch has round whorls throughout, the ribs are rounded, at first less than their width apart, while on the body whorl they are nearly twice their own width apart. The sutures are deep and the anterior canal is slightly flexed. Intercalated spirals appear on the third whorl. The lines of growth form corrugations where they cross the spirals.

This species is probably to be regarded as a lateral branch from the *rostratus* stock.

The relations of these species may be expressed as follows:



10. THE FUSUS AUSTRALIS SERIES.

This is a series of thick-set Fusi which appear to be genetically related to *F. distans* and *F. perplexus*. They are chiefly confined to the Indo-Pacific seas, but are represented on the American coast by *F. brasiliensis*.

FUSUS AUSTRALIS Quoy.

1832. ***Fusus australis*** Quoy, Voyage Astrolabe, zoöl., vol. 2, p. 495, t. 24, figs. 9–14.
1847. ***Fusus cribriliratus*** Reeve, Iconica, pl. 5, sp. 20.

The protoconch of this species has not been seen, but that of the closely related *F. brasiliensis* may be taken as typical of this species as well.

The conch begins with rounded whorls, the earliest of which have not been seen. The whorls are furnished with rounded ribs and the center is marked by two spirals which are more prominent than the others, because somewhat stronger, as well as somewhat farther apart.

A little later the upper of the two spirals becomes stronger, thus producing a unicarinate aspect. The ribs are at first strong and the spirals sharp and prominent, and between them, in the fifth or sixth volution, simple rounded secondary spirals appear by intercalation. The whorls gradually become bulging in the center and the ribs obsolete toward the sutures, but prominent in the middle. The simple intercalation continues for some time, after which from one to three additional ones appear on each side of the secondary spiral. The ribs generally become obsolete on the last whorl of the adult, and a not very prominent keel—the stronger central spiral—remains. In some cases the ribs are lost on the young specimen, showing individual acceleration.

In the younger specimens the spindle and anterior canal are proportionally longer than the spire, while in mature shells they are proportionally shorter. The striking feature of this shell is the vertically compressed character of the whorls which shortens and thickens it, giving it an appearance similar to that of *F. distans*.

In some adult specimens the prominence of the keel decreases, until the whorls appear round. In fact I am convinced that in a sufficiently large collection all the structural variations found in the *colus* series, will be represented. Parallelism appears to be the rule in the development of the species of *Fusus,* and it is to be seen in nearly every genetic series within the genus. The shells of the present species are covered with an olive brown periostracum.

A specimen in the Philadelphia Academy of Science collection has the characters and outline of this species with a bicarinate young, but it has its spirals noduled in a striking manner, which is wholly unlike that of normal specimens of the species.

The radula of this species is much like that of *F. inconstance* Lischke, the central teeth being slightly different.

Localities: South Australia (M. C. Z. ——, Nat. Mus. 91749, 16635); Indo-Pacific (M. C. Z. 34, Acad. Sci.).

FUSUS BRASILIENSIS sp. nov.

(Plate IV, figs. 1 to 4.) (Type fig. 2.)

The protoconch of this species is somewhat less oblique than the normal, appearing slightly more depressed from above. It consists of one and one half volutions, the last portion of which are furnished with vertical riblets, which toward the end become strong. The whole aspect of the protoconch recalls that of the Italian Tertiary Fusi.

The conch begins with rounded whorls, which at first are less bulging in the middle than those of the preceding species. The shell thus appears more cylindrical in the young. There are two strong central spirals visible, giving the appearance of bicarination. There are really three of these strong peripheral spirals, the lower one, however, being covered up by the next succeeding whorl. Above these central spirals on the shoulder are three other spirals, the third of which is next to the upper margin of the whorl. The ribs are faint, being more of the nature of undulations, broadly rounded and with narrow concave interspaces. On the latter part of the third volution an additional (fourth) spiral appears between the upper marginal one and the one just below it. A little later intercalated spirals appear between the three central primary spirals.

With continued flattening of the shoulder the upper of the two exposed central spirals becomes stronger, and projects above and beyond the others as a strong keel. By intercalation and separation of secondary from primary spirals, the appearance of highly compound intercalation is produced. The lines of growth are strongly marked, producing a vertical striation, which serrates the spirals. The ribs fade away toward the sutures, being strongest and sharpest on the angle. In some of the less accelerated specimens the whorls remain round longer, the angularity scarcely becoming pronounced until the ephebic stage is reached.

Accelerated individuals show a loss of angulation and tubercles in the last whorl. One specimen (M. C. Z. 947a, Pl. IV, fig. 4) has been seen, in which the ribs are absent from the last two whorls, and the angulation absent from the last whorl. This represents an advanced *colus* type of this series (*i. e.,* the *colus* variety of this species). It almost approaches the *longicaudus* type, which would be reached as soon as the angular ribbed whorls are suppressed or replaced by rounded ribbed whorls. In this, as in all the other series, whether they be considered series of species (as would be most proper) or series of varieties, or even subvarieties, the same order of variation prevails and the same types of mutations (or more correctly the same types of species) are reproduced.

The color of the American specimens of this species is white, with orange tipping on the tubercles. The coloration extends in a weak stream downward and upward from the tubercle, but soon dies out.

A variety from off Cape Frio (M. C. Z. 961) shows a development comparable to *F. longissimus.* It represents the opposite extreme from that shown in the *longicaudus* variety of this series (M. C. Z. 947a), and represents a progressive rather than a retrogressive type. It agrees with the normal form in the protoconch and early whorls, but the shoulder becomes more concave, and the tubercles become vertically flattened and strong. The spirals become faint to obsolete on the shoulder. This variety has quite a distinct aspect, but it is clearly a modification of the normal type.

In some of the specimens of this series the ribs become bulging on the last whorls, and the spirals become sharp. This variety seems to form a connecting link between this species and *F. marmoratus.*

Localities: Brazil (M. C. Z. 945 type; 945a, 947, 948, Thayer and Hassler expeditions); Florida? (M. C. Z. 946 Wurdemann shells); off Cape Frio, Brazil (M. C. Z. 961, dredged in 35 fathoms, Hassler Ex.); no loc. (M. C. Z. 949, 950, 950a); Suez? (B. S. 2506, Chickering coll.).

FUSUS MARMORATUS Philippi.

1847. *Fusus marmoratus* Philippi, Abbildungen, Bd. 2, p. 120, pl. 24, fig. 7.
1847. *Fusus marmoratus* Reeve, Iconica, pl. 1, fig. 1, 1*b*.

The protoconch of this species has not been seen, but it is probably of the nature of that of *F. brasiliensis.*

The conch begins with round whorls which are separated by moderately deep sutures. They are shorter than wide. The ribs are round, close set and reach from suture to suture. The interspaces are concave and narrower than the ribs. In the next stage an angulation appears, and with it intercalated spirals. The primary spirals are narrow, sharp and distinctly subspinose on the ribs. With the appearance of the angulation the ribs become obsolete below the angle as well as gradually above it. Sometimes, however, they persist to near the end.

In a specimen from the Gulf of Suez (M. C. Z. 942) the ribs are strongly developed on the penultimate whorl, but become obsolete on the body and shoulder of the last whorl. They remain strong, however, on the periphery, where they include from one to three spirals, which are thicker and stronger than the others, and which produce the noded projections on the keel. The coloration is mainly on the ribs.

This specimen represents the *torcumus* type of this species (series) never passing beyond the primitive angular stage. It is the most primitive variety of the species.

In another specimen (M. C. Z. 943) the peripheral angulation is formed by two strong spirals, of which the upper one is the stronger. The anterior canal of this specimen is rather shorter than that of most specimens.

In the Red Sea occurs a variety (described below) which shows some marked differences. It has been identified with *F. multicarinatus* Lam. as figured by Kiener, but with this identification I can not agree. It may be wise to separate this as a distinct species from *F. marmoratus,* although it is difficult to state just wherein lies the difference. The variation is not one due to acceleration in the development of a distinct series, but is rather a variation in those characters which will produce a new genetic series. In a refined classification the variation is to be considered as generic rather than specific. Nevertheless, although this shell marks the beginning of a new series, the variation has not as yet become pronounced enough to enable one to state its characteristics precisely.

FUSUS MARMORATUS var. β.

This variety differes from the preceding in being more angulated in the young, when the whorls are rather strongly bicarinate. The shoulder is flat, though strong spirals detract somewhat from the flat apearance. Intercalated spirals appear on the fourth or fifth whorl, and later become compound. In the adult whorls the ribs generally become obsolete, first fading toward the sutures and later wholly disappearing except on the keel, where they produce the nodules. The spirals are sharp and somewhat serrated by the lines of growth.

There is considerable variation due to the earlier or later suppression of the ribs. Sometimes the angulation of the early whorls is less strongly marked, and then the specimen resembles the typical *F. marmoratus*. In some specimens the ribs disappear before the adult stage is reached, and in the majority of specimens seen the last portion of the last whorl is keelless as well.

From the material so far seen two types of variation may be distinguished. The *toreumus* type retains the ribs towards the end, where they are represented by the nodules on the keel, while the *colus* type has the last whorls ribless and without tubercles on the keel. If the present variety is considered as a species, the several mutations, which mark distinct stages of development, must be considered as distinct varieties. In this, as in all the previous cases, acceleration is responsible for the production of these mutations, and it will thus be seen that, although the actual difference between this shell and the normal *F. marmoratus* is not so very great, being perhaps mainly what may be called a provincial mutation (*i. e.*, a variety developed in a separate province, cut off from the mother form), it has nevertheless begun to develop an independent series.

Judging from Kiener's figure the type of *F. multicarinatus* has a longer canal, and has only simple spirals. It is also less spinose in appearance than this variety, and the coloring is more uniform.

A rather striking specimen of this species is in the collection of the Boston Society of Natural History (228). The early whorls are round and the ribs rather narrower than in the preceding specimens. Angulation and intercalated spirals appear in the fourth whorl. The ribs are rather widely separated for this species. The shell is somewhat corroded, and does not show sharp surface characters nor coloration. Just below the suture on the shoulder the whorl is marked by a depressed band, which in the last whorl becomes a slightly depressed canal or canaliculated interspiral space, containing two secondary spirals. In the last part of the last whorl the ribs are in the form of vertical wrinkles, which are aciculate where crossed by the spirals. The intercalated spirals become compound in the adult.

This specimen represents a gerontic individual of this species, containing an additional whorl above what is usually found in the species.

In the typical *F. marmoratus* the old age characteristics consist in a loss of the angulation, a wrinkling of the shell, a loosening of the inner lip and the consequent formation of a pseudo-umbilicus.

Fusus australis and *F. marmoratus* are closely related, but I do not agree with Tryon who unites them. The specimens from the Red Sea partake of the character of both, while the Brazilian species is closely related to that from the Red Sea.

The young of *F. marmoratus* are on the whole more rounded, and perhaps more bulging at the center, with a slightly deeper impressed suture and less flattening of the shoulder. The coloration of *F. australis* is more uniform, and not so marked as that of *F. marmoratus.* The canal is also generally longer in *F. australis.*

Localities: Australia (M. C. Z. 897); Gulf of Suez (M. C. Z. 942); no loc. (M. C. Z. 943); Red Sea (M. C. Z. 898). Var., Red Sea (M. C. Z. 899?, 944); East Indies (B. S. 228).

In the Haines collection of the American Museum of Natural History are a number of specimens which appear to belong to this variety. They are labelled as coming from Australia.

The protoconch is of the normal form, obliquely elevated, with fine riblets on the last two-third volution, and ending in a varix. The whorls of the conch succeeding are round, with regular rounded ribs. Of these there are four or five in the best specimens seen, or fewer in others. They are bicarinate at the periphery, two spirals being stronger. This bicarination persists in some specimens, while in others from the strengthening of one of the spirals a simple angulation is produced. The ribs become obsolete in the last whorl, but the spines are prominent on the angle. Intercalation has become highly compound in the last whorl, and the lines of growth are also prominent.

The spirals of the body whorl along the line of the suture of the succeeding whorl become strong so as to produce a second angulation, which, though not very prominent, is nevertheless a recognizable feature of these specimens. An accentuation of this feature, together with an accentuation of the spines and a corresponding backward pushing of all stages (acceleration), produces *F. poligonoides.*

FUSUS MACULIFERUS Tapparone Canefri.

1830. *Fusus colus* DESHAYES, Encyclop. Meth., pl. 424, fig. 4.
1875. *Fusus maculiferus* TAPPARONE CANEFRI, Muricidi del. Mar. Rosso, p. 626.

This specific name was proposed by Tapparone Canefri for the variety of *F. tuberculatus* figured in the Encyclopedie Methodique, as

F. colus. It has a second angularity at the base of the body whorl. This species connects *F. tuberculatus* with the Red Sea variety of *F. marmoratus,* and with *F. polygonoides.*

A number of specimens in the Haynes collection of the American Museum of Natural History (7999) labeled as coming from the Philippines, appear to belong to this species. They show the same angularity at the base of the body whorl, though all the other characters are those of *F. tuberculatus.* This, therefore, may be considered the radicle of the present series.

Locality: Red Sea (Tapperone Canefri); Philippines (Am. Mus. 7999).

FUSUS POLYGONOIDES Lamarck.

1822. *Fusus polygonoides* LAMARCK, An. sans vert., T. VII, p. 129, sp. 22.
1847. *Fusus polygonoides* REEVE, Iconica, sp. 36.

Only a few specimens of this species have been seen, none of them showing the protoconch. Some doubt may be entertained as to the exact generic relations of this species, yet in the absence of definite evidence we will range it with the preceding species of *Fusus.* It appears to be an excentric type of the genus, most nearly related to the angular varieties of *F. marmoratus.* Both varieties, the long and the short, are represented in the specimens seen, corresponding to the figures given by Reeve.

The early whorls are round, thick and close together. The ribs are round, and about their own width apart. There are six primary spirals visible. In the sixth or seventh whorl angulation appears, the central spiral becoming prominent and the ribs fade towards both sutures. On the last whorl the ribs have practically disappeared from the shoulder, but on the angle they form strong, sharp and prominent conical tubercles. A second row of tubercles occurs on the body of the whorl, formed by the fourth spiral below the shoulder angle. In all but the body whorl this second row of tubercles is covered by the next succeeding whorl. Intercalation is of the very mild kind, occurring only on the last whorl and not even there between all the spirals. In the shorter variety intercalation is more pronounced and occurs somewhat earlier. The shoulder of this variety is less sloping than that of the longer type.

In the collection of the Philadelphia Academy of Sciences are a number of specimens which appear to be bleached varieties of this species, with the shoulder gently convex and the second row of tubercles rather subdued. The label accompanying this lot reads as follows: "Between Cairo and Suez, far from the sea are immense banks of these shells, from which it is inferred that the Red Sea formerly extended there" (E. R. Beadle).

In character these are intermediate between *F. marmoratus* var.

β and the present species. Another specimen, probably of this species, is from the Arabian coast.

Localities: East Indies, Red Sea (Phil. Acad. Sci.).

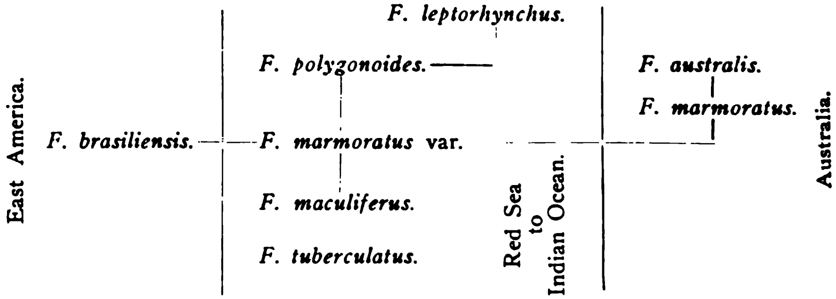
FUSUS LEPTORHYNCHUS Tapparone Canefri.

1875. *Fusus leptorhynchus* TAPPARONE CANEFRI, Muricidi del. Mar. Rosso, p. 627, pl. 19, figs. 5, 5*a*.

This species has the characters of an elongated *colus*-like *F. polygonoides*, with which Tapparone Canefri compares it.

Locality: Red Sea (Tapparone Canefri).

The relations of these species of this series may be expressed as follows:



11. SPECIES OF FUSUS WHOSE PRECISE RELATIONS ARE UNDETERMINED.

FUSUS SCHRAMMI Crosse.

1865. *Fusus schrammi* CROSSE, Journ. Conch., T. 13, p. 31, t. 1, fig. 9.
1881. *Fusus schrammi* KOBELT, Monograph Fusus, p. 172, taf. 53, fig. 4.

A good description of this species was given by Crosse, and to this only a few words need be added in this connection.

The shoulder is gently concave, the shoulder angle sharp and furnished with spines. The ribs are marked on the earlier whorls. The peripheral keel is made of two close-set spirals. The lines of growth pass forward near the suture.

A worn specimen bears a striking resemblance to the Miocene *F. spinifer* Bellardi of the Italian Tertiary. The large number of spirals on our species easily distinguish it even when worn.

A single specimen of this species occurs in the collection of the Philadelphia Academy of Sciences.

The protoconch appears to be of the normal *Fusus* type, but there is a suspicion of an indication that the riblets which appear on the last part of the whorl extend farther up on the protoconch than is normal. This suggests relation to *F.* (*Heilprinia*) *caloosaensis*. The form of the shell indicates, however, a normal *Fusus*. All the whorls are round. The ribs are rounded and more than their width apart. Intercalated spirals appear early, possibly in the second whorl. The lines of growth produce strong cancellations. On the last whorls the ribs have disappeared, and the spirals have become compound from repeated intercalation. The lines of growth crossing these produce a lattice type of cancellation.

Locality: U. S. Fish Com. Sta. 2676, 407 fathoms on fine sand off Cape Fear N. C. 45.8° F. temperature. 2 spec. (Nat. Mus. 87487).

Habitat: Guadaloupe, W. I. (Crosse).

FUSUS HALISTREPTUS Dall.

1889. *Fusus halistreptus* DALL, Blake Moll., vol. 2, p. 168, pl. 35, fig. 7.

This species was well described by Dall. The early whorls have a distinct bicarinate aspect from the strengthening of the spiral below the central one. Intercalation begins in the earliest whorls preserved in the specimen. In the later whorls the shoulder becomes flattened and the ribs become subdued, being far apart and narrow. In the early ephebic whorls the flattening of the shoulder is arrested, but the central spiral continues as a keel which is sharply noduled by the faint ribs which persist throughout. The primary spiral next below the central one repeats the characters of the latter in a milder manner. In the final whorls the shoulder becomes relatively more convex, and the intercalations triplicate.

Locality and Habitat: U. S. Fish Com. Sta. 2655, living in 338 fathoms, Little Bahama Bank, bottom sandy. Temp. 47.5° F. (Dall) (Nat. Mus. 93333).

FUSUS COUEI Petit.

1853. *Fusus couei* PETIT, Journ. de Conch., T. 4, p. 249, pl. 8, fig. 1.
1889. *Fusus couei* DALL, Blake Moll., vol. 2, p. 167.

The specimens seen of this shell are smaller than Petit's specimen. The shoulder slopes more upward, the suture is less impressed and the spirals are less strong.

The protoconch is somewhat depressed and not so typically Fusoid as in the species of *Fusus* generally. There are two whorls, the second with fine narrow riblets which pass downward about a third the width of the whorl, then forward, forming at first a concavity and then becoming gently convex, thus describing an outline like a reversed letter S. The riblets become more closely crowded and broader toward the end of the protoconch and no strong varix appears. The protoconch thus appears to merge into the conch. The ribs of the early conch are broad, low and rounded, with a mere linear depression between them. They extend straight from suture to suture, and are very regular. They are crossed by narrow elevated spirals, which are increased by the intercalation of secondary ones in the last portion of the ribbed spire. The ribs disappear at the beginning of the fifth volution and there are four or five ribless whorls with faint raised spiral lines of primary and secondary type.

The very slight depression of the suture gives this shell a *Pleurotoma*-like aspect. The end of the canal is slightly reflexed.

The figure given by Petit shows only primary and secondary spirals, *i. e.*, a single intercalation of spirals in a large specimen of over eleven whorls.

Localities and Habitat: Coast of Gulf of Mexico (obtained by Captain Coue (Petit). Between Tampa and the Dry Tortugas in 27 fathoms on sand (Nat. Mus. 93654); Gulf of Mexico, in 26 fathoms on fine white sand (Nat. Mus. 83572).

FUSUS (?) DILECTUS A. Adams.

1855. *Fusus dilectus* A. ADAMS, Zool. Proc., 221.

1881. *Fusus dilectus* A. ADAMS, Tryon. Man. Conch., vol. III, p. 68 and 227, pl. 85, fig. 590.

A dead specimen in the collection of the National Museum with barnacles growing on its outer lip has been identified with the above species. It has the same aspect as the preceding, but differs in detail. It is somewhat stouter and less tapering. The protoconch is similar. The first whorl of the conch is worn, but appears not unlike that of the preceding species. The second third and fourth whorls have three strong sharp spirals in the center of the whorl, and an additional one on either side close to the suture. Intercalation of spirals occurs on both sides of the central spirals, and soon becomes compound. The ribs disappear in the later whorls, but the striæ continue. The shoulder is more concave than in *F. couci* and the center of the whorl has a more angulated appearance. The secondary and even the tertiary spirals become strong, and all are cancellated by the strong lines of growth, much as in *F. halistreptus*.

This species may represent a parallel to *F. couei* from another *Fusus* stock. The specific identification is doubtful.

Locality: Moluccas (Nat. Mus. 19314).

FUSUS CERAMIDUS Dall.

1889. *Fusus ceramidus* DALL, Blake Moll., vol. 2, p. 171.

This is not a typical *Fusus,* as its form is rather short with a short anterior canal. In this respect it comes nearest to the Mediterranean species of to-day.

The protoconch is typically Fusoid, the apical portion obliquely elevated, the last portion with fine riblets and ending in a varix. The first two whorls of the conch are non-angular, although two central strong spirals are present. Beyond this the whorls become angulated. The ribs are far apart and sharply angulated by two spirals; the third is covered by the suture. There are two or three finer spirals on the shoulder. Intercalated spirals appear between these on the third whorl. In the next whorl the ribs become mere swollen undulations and the angularity is lost, while the shoulder changes from a flat to a convex contour. The whorls then become round and regular save for the imbricating subsutural band mentioned by Dall.

In one specimen a nodular character is shown on the center of the last two whorls, due to a strengthening of the two central spirals on the ribs and a complete obsolescense between them. The ribs are from two to three times their width apart.

Locality and Habitat: Blake sta. 273, 103 fathoms, Barbados (Nat. Mus. 87068); Blake sta. 290, 73 fathoms, Barbados (Nat. Mus. 87069).

The following species from the Blake collections must be referred to other, probably new, genera. *Fusus benthalis* Dall, *F. amiantus* Dall, *F. æpynotus* Dall; *F. alcimus* Dall (and variety) and *F. amphiurgus* Dall. They have for the most part a *Falsifusus* type of protoconch, and may be descended from that genus.

SPECIES NOT SEEN.

The following additional recent species, probably referable to *Fusus,* were figured by Tryon (Man. Conch., vol. III), who for the most part refers them to species already noticed:

Plate 32, fig. 96, *F. brenchleyi* Baird (=*F. nicobaricus* var. Tryon).

Plate 34, fig. 112, *F. loebbechii* Kobelt (canal rather short for a true *Fusus*).

Plate 35, fig. 124, *F. hartwigi* Shuttlew (=*F. gradatus* Reeve (Tryon); fig. 125, *F. paeteli* Dunker (=*F. gradatus* Reeve, Tryon); fig. 126, *F. similis* Baird (=*F. undatus* Gmelin, Tryon); fig. 129, *F. leptorhynchus* Tapparone Canefri; fig. 155, *F. pfeifferi* Phil. (Abbild. II, t. 3, fig. 1).

The following additional species are figured in Sowerby's Thesaurus Mon. Genus *Fusus.*

Plate 4, fig. 25, *F. sandvichensis* Sowerby, apparently allied to *F. toreuma;* fig. 28, *F. subquadratus* Sowerby; fig. 30, *F. acuticostatus* Sowerby (*F. coelatus* Reeve, Tryon).

Plate 5, fig. 35, *F. nodicinctus* A. Adams; fig. 36, *F. dilectus* A. Adams; fig. 37, *F. spiralis* A. Adams; fig. 38, *F. pateli* Dunker; fig. 43, *F. tasmaniensis* Adams; fig. 44, *F. similis* Baird.

Plate 7, fig. 62, *F. graciliformis* Sowerby; fig. 66, *F. articulatus.*

Plate 8, fig. 77, *F. percyanus* Sowerby; fig. 78, *F. assimilis* A. Adams.

Plate 13, fig. 157, *F. lævigatus* Sowerby; fig. 159, *F. biangulatus* Deshayes; fig. 164, *F. rudicostatus* Sowerby; fig. 166, *F. lætus* Sowerby; fig. 168, *F. excavatus* Sowerby.

ADDITIONAL SPECIES.

Fusus strigatus Philippi, Abbildungen, vol. 3, p. 116; pl. V. (42), fig. 3.

Fusus pfeifferi Philippi, Abbildungen, vol. II, p. 117, pl. III, fig. 1.

Fusus nigricostatus E. A. Smith, Moll. from Japan, p. 202, pl. 20, fig. 33. Canal rather too short and flexed for a typical *Fusus*. Recalls *Aptyxis syracusanus*.

Fusus niponicus E. A. Smith, ibid., p. 203, pl. 20, fig. 3. Appears to be related to the *rostratus* series, if a true *Fusus*.

F. coreanicus E. A. Smith, ibid., p. 204, pl. 20, fig. 35. Probably not a true *Fusus*, may be related to the preceding.

Fusus pulchellus Philippi, Kobelt, Iconographie, p. 55, pl. 8, figs. 20 to 25. Appears to be related to *F. rostratus*. Canal too short and flexed for a typical *Fusus*.

The following additional species are figured by Reeve (Iconica, Fusus): Species 17, *F. aureus* Reeve, allied to *F. crebriliratus;* species 20, *F. ustulatus* Reeve; species 24, *F. torrulosus* Lam., allied to *F. distans;* species 52, *F. lanceola* (Martini) probably belongs to the *colus* series; species 54, *F. clausicaudatus* Hinds Voy. Sulphur, pl. 1, figs. 10, 11; species 58, *F. rufus* Reeve; species 65, *F. gradatus* Reeve; species 69, *F. gracilimus* Reeve, probably a member of the *colus* series; species 75, *F. acus* Adams and Reeve, a small form, probably of the *colus* series; species 88, *F. muricatus* Montagu, probably a member of the *F. rostratus* series.

FOSSIL SPECIES NOT SEEN.

FUSUS (?) UNICARINATUS Desh.

1824. *Fusus unicarinatus* DESH., Coq. Foss. Env. Paris, t. 2, p. 515, pl. 72, figs. 11, 12.

1866. *Fusus unicarinatus* DESH., Anim. sans vert., t. 3, p. 252.

Not *Fusus unicarinatus* BEYRICH, Zeitschrift der Deutsch. Geol. Gesellsch., 1856, p. 80, pl. 7, fig. 6.

1889. *Fusus unicarinatus* COSSMANN, Cat. Coq. Foss., p. 177.

I have not seen this species, which occurs in the Sables inferieurs of the Paris Basin. I am inclined to class it with *Falsifusus? serratus* (Deshayes) though I am not unmindful of the possibility that it may prove a true *Fusus*. This, however, I doubt very much, for, occurring in the lower Eocene, it has already advanced beyond the Fusi of the middle Eocene (*F. aciculatus* of the Galcaire gross.) in development. The middle Eocene species are very primitive, while this lower Eocene species takes rank in development with Miocene and later species of true *Fusus* (*F. rostratus* and *F. bredæ*). The relationship must be established by the study of the protoconch, which I believe will show its relationship to *Falsifusus* rather than to *Fusus*.

Localities: Retheuil, Soissons, Cuise-Lamotte, Cuise St. Gobain, Paris Basin.

Horizon: Sables inferieurs. Lower Eocene.

FUSUS MULTISPIRATUS v. Koenen.

1856. ***Fusus unicarinatus*** BEYRICH, Zeitschrift d. Deutsch. Geol. Gesellsch., p. 80, pl. VII, fig. 6.

1889. ***Fusus multispiratus*** v. KOENEN, Nord-deutsch. Unter Oligocän, Lief. 1, p. 174, pl. 14, fig. 56.

Von Koenen describes the protoconch of this species as consisting of one and a half smooth swollen and strongly arched volutions, the apex "abweichend gewunden und eingewickelt." In the absence of illustrations it is somewhat difficult to understand the exact meaning of these words but they suggest the typical *Fusus* protoconch. The smooth portion is succeeded by a half volution which is ribbed with eight fine riblets. The protoconch is said to be similar to, though smaller than, that of the French specimens (*F. unicarinatus?*) from Cuise.

The sculpture of the conch appears abruptly, consisting of four strong spirals, the third of which (from above) is the strongest. The earliest whorls are round, and the ribs extend from suture to suture. The whorls later on become angular, the shoulder flattened, and the ribs obsolescent at the sutures. The central spiral forms a carina, which is strongly noded where crossed by the ribs.

Localities: Biere; Unseburg; Lattorf; Lethen; North Germany.

Horizon: Lower Oligocene (von Koenen).

This appears to be a true *Fusus,* representing the *toreumus* type of the modern series among the earlier Tertiary.

FUSUS ERECTUS von. Koenen.

1889. ***Fusus erectus*** v. KOENEN, Norddeutsch Unteroligocän, Lief. I, p. 176, pl. 14, figs. *7a, b; 8a, b, c.*

This small species appears to be a true *Fusus* judging from the description. The protoconch is described as smooth and "blasig aufgetrieben" of one volution and a half, followed by a quarter volution with four smooth riblets. The ornamentation of the conch appears abruptly, with three spirals on the rounded whorl, the central spiral being the strongest. Additional spirals appear a little later, and intercalation occurs in the adult. Ribs strong and far apart in the adult; interspaces two to three times their width. The whorls remain round to the end.

Von Koenen compares this species with a variety of *F. aciculatus* from Mouchy.

Localities: Lattorf; Calbe; Atzendorf; Unseburg; North Germany (von Koenen).

Horizon: Lower Oligocene.

If this species is not the young of some more highly developed type, it probably represents a scarcely modified successor of the Eocene *F. aciculatus* (probably the British variety); and it may in turn have become the ancestor of the American progenitor (?) of *F. turriculus* and *F. eucosmius, i. e., F. hennickeni* of the Upper Oligocene (?) of the West Indies.

The other "Fusi" from the Oligocene of North Germany belong to other genera.

FUSUS INCONSTANS Michelin.

1831. *Fusus inconstans* MICHELIN, Mag. de Conchyliologie, p. 33, fig. 33.

This is a Fusoid shell with the earliest whorls plicated, but the last three smooth. The inner border of the lip is lirate, and the canal slightly flexed. A rather strong posterior canal is indicated.

Horizon and Locality: "Falunieres de Salles près Bordeaux (Michelin).

FUSUS PREVOSTI Partsch.

1856. *Fusus prevosti* PARTSCH, Hoernes, Foss. Moll. Tert. Beck. Wien, I, p. 285, pl. 31, fig. 9.

This species, found at Baden, Voslau Steinabrunn and other localities in the Vienna Basin, may be a ture *Fusus,* but its relations are not readily determinable from an inspection of the figure and from the description. Hörnes compares it with *F. longissimus,* to which his figure has some resemblance. R. Hoernes and Auinger (Gast. Oestreich Ungarn, p. 253, pl. 31, fig. 1) state that the figure and description are incorrect and give figures of a form with much shorter anterior canal. This makes this shell less like a true *Fusus,* and more like a *Fasciolaria,* to which genus it may belong.

B. SPECIES OF FUSOID SHELLS GENERALLY REFERRED TO FUSUS.

12. THE GENUS **APTYXIS** Troshel.

(1868. TROSCHEL, Das Gebiss der Schnecken, vol. 2, p. 64.)

This genus was founded for the reception of *Fusus syracusanus* L. It was supposed to differ from the true Fusi in the Fasciolarioid character of the dentition. Typical species of *Fusus,* however, such as *F. inconstans* and *F. australis,* have a very similar dentition. Nevertheless *F. syracusanus* differs sufficiently from typical species of *Fusus,* to demand a separate generic designation. The most important points of distinction are the short, slightly sinuous anterior canal, and the long stout spire. The protoconch and early stages appear to be like those of *Fusus.*

APTYXIS PROVENCALIS (Risso).

1824. *Fusus provencalis* RISSO, Hist. Nat. L'Europe Mer., T. 4, p. 207, pl. 9, fig. 131.

1825. *Fusus provencialis* DE BLAINVILLE, Fauna Française, Moll., p. 87, pl. 4D, fig. 1.

No specimens of this species have been seen, but the illustrations given by Risso and de Blainville show clearly the characteristics of this species. It appears to be a primitive Fusoid with simple ribs and spirals, the latter only in primary series. No angulation or keel appears, and the ribs continue to the lip. The canal is short and slightly flexed, corresponding to that of *A. syracusanus,* to which this species probably has ancestral relations. This relation was pointed out by de Blainville.

Accepting this relationship, the suggestion presents itself that this species is the connecting link between *A. syracusanus* and primitive members of the *F. rostratus* series of the same fauna. This relation may be tentatively maintained until more material can be studied.

Locality: Provence, Mediterranean coast of France.

APTYXIS SYRACUSANUS (Linnæus).

1767. *Murex syracusanus* LINNÆUS, Syst. Nat., ed. 12, t. 1, pt. 2, p. 12.

1847. *Fusus syracusanus* REEVE, Iconica, pl. 3, sp. 10.

1868. *Latyrus* (*Aptyxis*) *syracusanus* TROSCHEL, Gebiss der Schnecken, vol. 2, p. 64.

1883. *Fusus syracusanus* KOBELT, Europäische Meeresconchilien, 3, p. 50, pl. 9, figs. 3–5.

The protoconch of this species is not preserved in sufficient perfection in the specimens examined to allow accurate determination. It appears to be typically Fusoid.

The conch begins with rounded whorls which suggest *Fusus provencalis.* The ribs of the early stages are broad and relatively close together, being less than their width apart. They are not very strongly marked by the spirals which are best developed in the interspaces. These interspaces are deeply colored. Intercalated spirals usually appear with the angulation, which in the less accelerated individuals begins late. It is brought about by the increase in thickness of the two central spirals which at first are similar. Later, however, the upper one increases in strength, and the shoulder becomes slightly flattened. The ribs at the same time become fainter except at the center, where they form nodulations at the angle.

The angulation increases through flattening of the shoulder, and through a corresponding flattening of the sides of the whorl, thus producing a rigid angulation. The ribs continue across shoulder and body of the whorl.

The most advanced specimens are characterized, in addition, by revolving color bands, which cross the shoulder but leave practically the whole of the exposed part of the body free. This is as broad as the flat part of the body. Just above the suture the body recedes and is colored by several brown revolving bands. The ribs are most strongly developed on the white band.

In slightly more advanced specimens the same coloration occurs, but the nodulations on the shoulder angles become very prominent and the ribs weaker on the shoulder. Intercalation is twice compound. One specimen (M. C. Z. 931) shows a rerounding of the shoulders in the last two whorls, the shoulder on all the whorls being less flat. At the beginning of the ultimate whorls the ribs have disappeared, and the shell is smooth for about half an inch in length. This is apparently a pathologic condition. After this the normal conditions appear again, but with a convex shoulder which merges with the body more and more, so as to produce a uniform curvature. The angulation remains only as a carina. The revolving color bands do not occur in this specimen, but in their place vertical color bands mark the ribs slightly in front of the center from the beginning of the angulation to the end of the shell.

In another specimen (M. C. Z. 929) old age characters are shown, the ribs and shoulders having disappeared together with the color bands. The whorls at the same time become round and colorless.

Localities: Mediterranean (M. C. Z. 928, 930, 931, 932) (B. S. 229, 6083, 6084, 231); Tuscany (M. C. Z. 929); Morocco (M. C. Z. 933).

13. EOCENE SPECIES GENERALLY REFERRED TO FUSUS.

In the Eocene of the Gulf States of North America occur several species of Fusoid shells which have all the aspect of a true *Fusus*, but differ from that genus in the strikingly distinct protoconch. This is closely similar to that of many species generally referred to *Pleurotoma*. These shells are genetically related to *Levifusus*, and species like "*Fusus*" *bellus* of the same geological horizon which have similar protoconchs. Of these groups they represent the elongated types. Their genetic relation to certain species of the heterogeneous group *Pleurotoma* is suggested by the close similarity of protoconch and early whorls. For such shells with *Fusus* form and *Pleurotoma* protoconch the name *Falsifusus* is proposed.

FALSIFUSUS gen. nov.

Shells fusiform, with a long and slender spire, and a canal of about the same length. Protoconch merging into the whorls of the conch, no sharp line of demarkation being apparent. The first two whorls of the protoconch are generally smooth, the apical one minute, gradually ncreasing in size. The three to four whorls which constitute the apical series form a rather narrow cone. Third whorl with fine closely crowded, more or less oblique riblets, which in part are gently concave forward. These, after the completion of the third, or sometimes an additional whorl, quickly merge into the normal whorls of the conch. A basal carina usually marks the ribbed whorls of the apical series, this carina appearing just above the suture. Whorls of the conch as in *Fusus*.

Type: Fusus meyeri Aldrich (=*F. ottonis* Aldrich).

FALSIFUSUS MEYERI (Aldrich).

(Plate XVII, fig. 9.)

1886. *Fusus meyeri* Aldrich, Bull. I Geol. Surv. Alabama, p. 21, pl. 3, fig. 12.
1896. *Fusus meyeri* var. Harris, Bull. Am. Pal., vol. I, p. 201, pl. 18, fig. 12 (see fig. 5).
1897. *Fusus ottonis* Aldrich, Bull. Am. Pal., vol. II, p. 172.
1899. *Fusus ottonis* Harris, Bull. Am. Pal., vol. III, p. 42, pl. 5, fig. 5 (see fig. 4).

(Since the present species is not a *Fusus* and Dunker's *Fusus meyeri* s, the original name may be retained and *Fusus ottonis* becomes a synonym for *Falsifusus meyeri*.)

The protoconch of this species is at first minute, but gradually and uniformly increases in size, the form being pyramidal. The first two whorls are smooth; the succeeding ones ornamented with strong sharply marked distant sublunate riblets, which are concave forward and at the same time gently slope forward. Just above the suture is a well-marked basal carina. The fourth whorl is somewhat more bulging than the preceding. No sharp line of demarkation occurs between this whorl and that bearing the normal ornamentation of the conch. The spirals appear abruptly, and with their appearance the whorls become angular. Above the central carinated spiral on the flattened shoulder occur three fainter subequal and subequidistant ones. A fourth appears next to the suture, on the sixth whorl from that on which the spirals first appeared, or the tenth from the apex. This spiral remains small and close to the suture. Below the central carina, two spirals of the body of the shell are shown. The second of these is just above the suture of the succeeding whorl, and is often somewhat strengthened, suggesting the double carination characteristic of many species of *Levifusus*. A rather wide space separates this spiral from those below, which

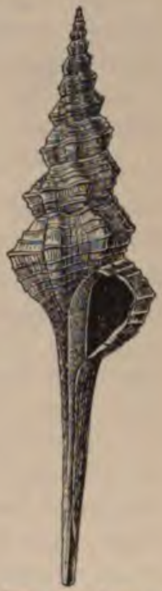


Fig. 4. *Falsifusus meyeri* Lignitic type. (After Harris.)

are somewhat finer, and are to be considered as belonging to the spindle. The ribs throughout are rounded, and usually distant more than their width. In the later whorls they become obsolete towards both sutures. Harris figures a specimen (Bull. Am Pal., I, pl. 18, fig. 12) from near Oakhill, Alabama, of the variety designated by him as the "Matthews' Landing-Oak Hill type." in which the third spiral below the carina is strengthened, this spiral being just below the edge of the succeeding whorls. Intercalation occurs between the primary spirals of the spindle (fig. 5).

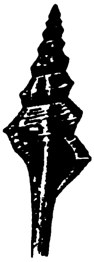


FIG. 5. *Falsifusus meyeri*, Midway variety.

The variety here described characterizes the lowest Eocene or Midway stage of the Gulf States. It differs in some respects from the type of the species as figured and described by Aldrich, and later refigured by Harris (fig. 4). The chief differences are, according to Harris; the greater number of costæ on some of the whorls in the Midway variety where they number as high as eighteen, while in the Lignitic variety seven or eight is the usual number; and the absence of the second incipient carination at the suture in the Lignitic variety, this being a marked feature in the Midway variety from Matthews' Landing.

Localities: Alabama Woods Bluff, Matthews Landing, Oak Hill, Dale Branch.

Horizon: Lower Eocene, Midwayan and Chickasawan groups.

FALSIFUSUS LUDOVICIANUS (Johnson).

(Plate XVIII, fig. 1.)

1899. *Fusus ludovicianus* JOHNSON, Proc. Phil. Acad., p. 72, pl. 4, fig. 5.

The protoconch of this species agrees in essential characters with that of *F. meyeri*. The first two whorls are smooth and gradually increase in size. The next whorl is marked by oblique narrow smooth riblets essentially as in *F. meyeri*. This is followed by the normally round-ribbed and spirally marked whorls, which with but slight modification continue to the adult stage. The shoulder is slightly flattened, but there is no pronounced angulation or carination of the whorl. It is, however, more bulging in the center than is normal in rounded-whorled species of Fusoid shells.

Locality: Louisiana, St. Maurice Winn Parish (Johnson); Phil. Acad. — (U. S. Nat. Mus. 147226).

Horizon: Eocene, Lower Claiborne.

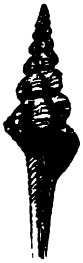


FIG. 6. *Falsifusus ludovicianus.* (After Johnson.)

FALSIFUSUS (?) HOUSTONENSIS (Johnson).

1899. *Fusus houstonensis* JOHNSON, Proc. Phil. Acad. Sci., p. 72, pl. 1, fig. 4.

The apex of the only specimen of this species known is imperfect, and hence the precise generic position is not known. It may be a true *Falsifusus,* though judging from the similarity of the shell in the characters of the whorls to "*Fusus*" *apicalis* Johnson, it is not unlikely that these two species may be generically related to each other, while they may prove sufficiently distinct from *Falsifusus* to demand a separate generic designation.

The whorls of the adult shell are uniformly rounded, with round and strong ribs which reach from suture to suture, and are separated by strong interspaces. The spirals are simple except in the last whorl, where intercalations appear between the three primary spirals. No carination occurs, the whorls being throughout round. Johnson, however, states that the whorls are somewhat angular near the apex.

If this species proves to be congeneric with *F. meyeri* we have a case of a species less specialized appearing in time after a more highly specialized one. For in *F. (?) houstonensis* the primitive feature of round whorls and round continuous ribs, with spirals mostly simple still persist, while in *F. meyeri* that stage is long past, although it appears earlier in the Eocene than does *F.? houstonensis.* If, on the other hand, this species and "*Fusus*" *apicalis* are congeneric as appears to be the case, then we can explain the apparent anomaly on the supposition that these two species represent a lateral branch from *Falsifusus,* in which the apical whorls are more accelerated, and the conch more retarded than in *F. meyeri.*

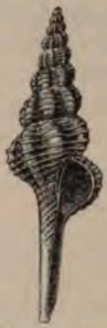


FIG. 7. *Falsifusus (?) houstonensis.* (After Johnson.)

Locality: Alabama Bluff, Trinity River, Houston County, Texas.

Horizon: Lower Claiborne.

FALSIFUSUS (?) APICALIS (Johnson).

(Plate XVIII, fig. 2.)

1899. *Fusus apicalis* JOHNSON, Proc. Phil. Acad. Nat. Sci., p. 71, pl. 1, fig. 3.

This species is referred to *Falsifusus* with considerable reservation. Its apical whorls are so much further advanced than those of *Falsifusus meyeri* and similar species that a generic separation seems very desirable. Nevertheless it may be best to regard this species and the preceding one with it, if it prove of the same type, as a highly accelerated lateral branch from *F. meyeri.*

Apical whorls accelerated. The first smooth, the succeeding three with fine oblique and slightly concave, smooth and closely crowded riblets, which at the end of the fourth volution quickly give way to the

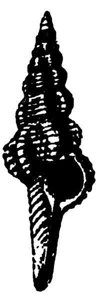


FIG. 8. *Falsifusus? apicalis.* (After Johnson.)

coarse rounded ribs cancellated by simple spirals which characterize all the succeeding stages. These ribs are separated by interspaces which are not infrequently twice the width of the ribs. The spirals are simple, but between the ribs and on the spindle they are nodulose. The aperture is somewhat contracted, and the interior of the whorl is lirate. The spindle is relatively shorter than in typical *Falsifusus*, thus giving the shell something of a *Latirus*-like appearance.

The protoconch of this species resembles somewhat that of *Pyropsis perula* Aldrich from the Midway beds of Matthews' landing.

Locality: Alabama Bluff, Trinity River, Houston County, Texas (Johnson, Phil. Acad. 6878).

Horizon: Eocene, Lower Claiborne.

FALSIFUSUS (?) SERRATUS (Deshayes).

(Plate I, figs. 9, 10, 14.)

1824. *Fusus serratus* DESHAYES, Coq. Foss. Env. Paris, t. 2, p. 515, pl. 75, figs. 12, 13.

1866. *Fusus serratus* DESHAYES, Anim. sans vert., p. 253.

1889. *Fusus serratus* COSSMANN, Cat. Coq. Foss., p. 178.

The protoconch of this species consists of several volutions and merges into the conch without any definite line of demarkation. There are in all nearly two smooth volutions, the first being swollen but depressed, with the apex buried in the succeeding whorl. It gradually increases in size, this increase continuing into the second whorl. On the lower part of the second whorl, above the suture, a sharp strongly-marked revolving line or spiral occurs, which lies just above the suture. After a volution or more it disappears. On the third whorl faint costæ or riblets occur above this line. These are smooth and not cancellated by revolving spirals. They are slightly concave forward, at the same time they slope obliquely forward from the upper to the lower suture. Towards the end of the third volution these ribs or costæ become stronger and more vertical, and finally they become cancellated by revolving spirals. The whorls up to this point are rounded.

It is very difficult to state in this case where the protoconch stops and the conch begins. In a few specimens a faint growth line appears after the first volution or volution and a fourth. This may mark the end of the protoconch, which in that case is smooth and without ornamentations. If this is the case the nepionic stage of the shell is characterized at first by a smooth half whorl or more, followed by a portion of a whorl with simple ribs, and later by the normal round-ribbed whorls with well-developed spirals. It seems best on the whole to regard this unusual type of ornamentation as belonging to the protoconch stage, which may then be considered as highly accelerated as that of *Fusus.*

As the shell grows older the shoulder above the central spiral gradually becomes flattened, the angulation grows more pronounced, and finally flattened spines take the place of the simple carina. The ribs at the same time gradually become obsolete below the shoulder angle, and later on upon the shoulder as well. Slight undulations, however, mark the places where the ribs would cross the carina, and on these the flattened spines are prominent. The shoulder is marked by three strong spirals with interspaces decreasing in width towards the suture. Sometimes two additional finer spirals crowded close to the suture and near together occur on the adult shell. Only two spirals of the body of the whorl are visible above the suture, and in some cases the lower of these is covered up by the edge of the succeeding whorl, leaving only one visible. This latter with the central spiral developed into a carina, and with the first spiral above the carina constitutes the three primary spirals.

In the final portion of the last whorl of a large and probably gerontic individual of this species (pl. I, fig. 9) the spines of the angle become fused into a strong carinal ridge. The lines of growth at the same time become lamellose, and the aperture is slightly contracted.

Throughout the majority of the later whorls, *i. e.,* in both neanic and ephebic stages, the shoulder suddenly turns up below the suture, forming a narrow subsutural band and marking the early development of a posterior canal in the aperture. This feature, which does not generally occur in the Eocene Fusi, is an additional indication that this species in its own genus is further developed than are the Eocene Fusi.

The lines of growth of *F.* (*?*) *serratus* on leaving the suture are at first straight for the width of the subsutural band, then curve quite abruptly backward, and, after crossing the shoulder angle, curve again gently forward.

This species strikingly recalls *Fusus bredæ* Michelotti of the Italian Pliocene. It was apparently not until that later period in the Tertiary that true *Fusus* reached that stage of development which the present species had reached in the Eocene.

Localities: Parnes (M. C. Z. 1398, 27739); Epernay (M. C. Z. 1397) Paris (M. C. Z. 1399, 1405).

Horizon: Eocene, Galcaire Grossier.

The protoconch of this species differs to some extent from that of *F. meyeri.* The first whorl is like that of a true *Fusus* in some respects, while the second partakes of the nature of that of *F. meyeri.* It is most probable that the present species has originated entirely independently of the American Fusoid shells, probably from some Pleurotomoid ancestor. If this is true, this species can not be referred to *Falsifusus,* but must be placed in a new genus.

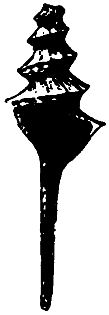


FIG. 9. *Fulgurofusus quercollis.* (After Harris.)

FULGUROFUSUS gen. nov.

This is another of the pseudo-forms of *Fusus,* in which the outline and general characters are those of *Fusus* while the protoconch and early whorls are distinct. The protoconch is obliquely erect as in *Fulgur* and in *Levifusus (?) harrisi* Grabau from the lower Claiborne of Texas. (See Plate XVII, figs. 5, 6.) It does not end in a ribbed portion as in *Fusus,* but after barely one volution an angulation appears near the middle and with it a basal carina. This type of protoconch is identical with that of *Pleurotoma dimitiata* Brocchi and *P. coquandi* Bellardi, both of which are from the Italian Pliocene.

Genotype: Fusus quercollis Harris.

FULGUROFUSUS QUERCOLLIS (Harris).

(Plate XVII, fig. 6.)

1896. *Fusus quercollis* HARRIS, Bull. Am. Pal., vol. I, p. 200, pl. 18, fig. 9 (see fig. 9).

This species is well described by Harris and it is only necessary to add the following note to his description.

The protoconch is Fulguroid, consisting of one whorl which is smooth, obliquely erect and with a prominent apex.

The conch is not distinctly separated from the protoconch, and is very early marked by an angulation and a basal carina; *i. e.,* a strong spiral which appears just above the suture. The angulation is produced by two spirals which are crossed by vertically oblique semilunar riblets. The peripheral spirals are close together and at first equal, but later the upper one becomes more prominent and develops finally into the strong noduled keel so characteristic of the species. The lower spiral becomes fainter, and two others appear below it. None occur on the shoulder.

Locality: Graveyard Hill, Wilcox County, Alabama (Acad. Sci. 9019); Matthews' Landing, Alabama (Acad. Sci. 8524).

Horizon: Lower Eocene.

FULGUROFUSUS RUGATUS (Aldrich).

1886. *Fusus rugatus* ALDRICH, Bull. I Geol. Surv. Alabama, p. 22, pl. 5, fig. 9.
1896. *Fusus rugatus* HARRIS, Proc. Acad. Nat. Sci. Phil., p. 478, pl. 22, fig. 8.
1899. *Fusus rugatus* HARRIS, Bull. Am. Pal., vol. 3, p. 43, pl. 5, fig. 6 (see fig. 10).

This species has precisely the same type of protoconch as the preceding, but with the beginning of the conch only one spiral appears.

which is crossed by vertical ribs much after the manner of a young *Fulgur*. The ribs produce nodules where they cross the angulations. The adult whorls show a remarkable sinuosity or notch on the periphery, where this is marked with strong spirals. This notch is something over a fourth of an inch in depth, but becomes filled up later on and disappears as a notch from the margin. When the spine is developed at its maximum the notch extends outward from the aperture, but later on as the shell is built forward the notch comes to project backwards in the margin of the shell. This type of spine is precisely that found in adult *Fulgur,* such as *F. caricum,* and this together with the fulguroid protoconch of the present species suggests that we have in *Fulgurofusus* either the Eocene ancestor of *Fulgur* and *Sycotypus* or a closely related lateral branch from that ancestor.

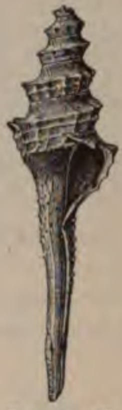


FIG. 10. *Fulgurofusus rugatus.* (Aldrich.)

The Fusoid form of the species of *Fulgurofusus* is clearly a case of parallelism and is due to a great obliquity of whorls and a loose coiling. It is approached in certain species of *Fulgur*. From this same stock was undoubtedly derived the *Levifusus* series through such connecting form as *L. (?) harrisi* from the Texas Eocene.

Localities: Graveyard Hill, Wilcox County, Alabama (Acad. Sci. 9018); Gregg's Landing, Alabama (Acad. Sci. 6869).

Horizon: Eocene.

14. THE GENUS HEILPRINIA.

HEILPRINIA gen. nov.

This generic name is proposed for a number of recent and late Tertiary Fusoid shells from the Antillean region and Florida. They differ from *Fusus* in the very remarkable, strongly accelerated protoconch, which is throughout its greater portion crossed by riblets. (See detailed description under *H. caloosaënsis.*) The shells are usually close coiled with short spire and bulging whorls. The canal is long and the columella usually furnished with numerous short plications in the adult.

Genotype: *Fusus caloosaënsis* Heilprin.

HEILPRINIA CALOOSAËNSIS (Heilprin).

(Plate XVIII, fig. 5; Plate VIII, fig. 21.)

1887. *Fusus caloosaënsis* HEILPRIN, Trans. Wagn. Free Inst., vol. I, p. 68, pl. I, fig. 1.

1890. *Fusus caloosaënsis* DALL, Tert. Moll. Fla., pt. 1, p. 127.

1892. *Fusus caloosaënsis* DALL, ibid., pt. II, p. 234, pl. 14, fig. 3 (see fig. 11).

The protoconch in the specimens seen has a small rather pointed end, and is smooth for about a third of a volution. There is, however, a slight hollow in the upper whorl of some specimens, as if a partial volution had been broken away. The smooth whorls are followed by whorls with narrow sharp riblets, which are close together on the upper part of the whorl, but separate towards the center until they are from two to four times their width apart, and then approach each other again towards the umbilical side of the whorl, their lower ends being hidden by the succeeding whorl. This type of riblets continues for about a third or a half volution, after which the riblets become concave forward, on the upper part of the volution and convex forward on the lower portion. The outline is something like a reversed letter S. The general slope of the riblets is downward and forward. After the completion of the first ribbed volution the riblets become more crowded, but the interspaces are of irregular width. Fine spiral lines make their appearance between the ribs, where they are hardly visible even with a magnifier. After the completion of over one and a half ribbed volutions of the protoconch the riblets merge into the ribs of the conch, there being no definite varix. Towards the end the ribs are vertical and subequally spaced. There appears to be a very fine barely visible spiral sculpture on the ribbed portion of the protoconch, traces of which have been seen throughout.

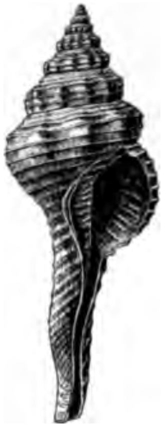


FIG. 11. *Heilprinia caloosaënsis.* (After Dall.)

The conch begins with whorls which almost from the outset show an angularity. This is due to the strengthening of the three central spirals, the middle one being strongest, while the lower one is covered by the edge of the succeeding whorl. The shoulder is flat and even gently concave, and has one spiral near the center and another just below the suture. The passage appears to be direct from protoconch to angulated whorl.

Not until the beginning of the fourth volution or sometimes much later is there any intercalation of spirals, and then only on the shoulder next to the suture band. Later, another spiral appears between this last one and the suture band. Intercalation also occurs between the lower of the three primary spirals and the spiral next below, but it is rarely observed on other parts of the shell. Very faint revolving lines may, however, be seen between most of the spirals.

The inner lip is not commonly developed to any extent except in adult individuals. On it is shown the influence of the spirals, producing pseudo-plications. There are also short horizontal plications which make a considerable angle with the former.

The general characters of the species have been so well described by Dall that they need not be given here. A remarkable specimen of this species occurs in the collection of the U. S. National Museum (cat. 97494 pars.). The spire of this specimen is nearly turbinate, the sutures being hardly impressed. A strong vertical ribbon-like border marks the upper portion of the later whorls, and gives the shoulder a very concave aspect. The whole appearance of the shell is like that of some turbinate Pleurotomoids.

Localities: Caloosahatchie River, Florida (Nat. Mus. 97494); Shell Creek, Florida (Nat. Mus. 113220); Waccamaw River (Wagn. Free Inst.); Florida (M. C. Z. 27799).

Horizon: Pliocene.

HEILPRINIA CALOOSAENSIS var. CAROLINENSIS (Dall).

1892. *Fusus caloosaënsis* var. *carolinensis* DALL, Tert. Moll. Fla., pt. 2, p. 234, pl. 14, fig. 4*a* (see fig. 12).

1889. *Fusus caloosaënsis* var. *carolinensis* DALL, Blake Moll., pl. 29, fig. 4.

The type specimen of this variety shows an additional very minute half whorl or more on the protoconch, so that altogther there occurs a complete volution without riblets, but this portion of the protoconch is very small. This is followed by one and one half volutions, which is ribbed as described for the protoconch of *H. caloosaënsis.* The young conch appears bicarinate because the lower of the three spirals on each whorl is progressively covered by the succeeding whorl. The later whorls become more bulging and a strong secondary spiral appears between the middle and lower of the primary ones, the latter being barely visible above the suture. In some specimens the shoulder is less depressed, sloping flatly upward to the lower of the three spirals of the preceding whorl, resembling in this respect more the normal form. Intercalated spirals in these specimens do not appear until the final whorl.

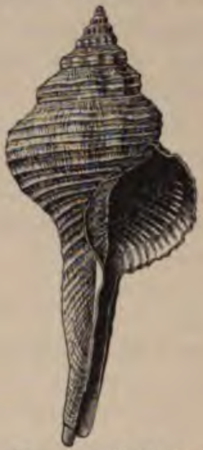


FIG. 12. *Heilprinia caloosaënsis* var. *carolinensis.* (After Dall.)

This variety is stouter than the normal form of the species, and shows a slight advance upon it in that the ribs become obsolete much earlier. It apparently connects this species with *H. equalis.*

Localities: Tilly's Lake, South Carolina (Nat. Mus. 112349); Waccamaw, S. C. (Nat. Mus. 11455); Cape Fear (Nat. Mus. 8695).

Horizon: Pliocene, Waccamaw beds.

HEILPRINIA EQUALIS (Emmons).

1858. *Fusus equalis* EMMONS, Geol. Rep. North Carolina, p. 250, fig. 111.

1862. *Neptunea equalis* CONRAD, Proc. Acad. Nat. Sci. Phil., p. 560.

1890. *Fusus equalis* DALL, Tert. Moll. Fla., pt. I, p. 126.

1892. *Fusus equalis* DALL, ibid., pt. 2, p. 234, pl. 14, fig. 3b.

The protoconch and young conch of this species and of *H. caloosaënsis* are almost absolutely identical. The early whorls are slightly less concave than in some specimens of *H. caloosaënsis* but more concave than in others. On the fourth whorl the ribs disappear and the spirals become fainter, the whorls at the same time changing from a subangular to a rounded contour. The fifth volution of this species is rounded while the same in *H. caloosaënsis* is still angular with strong spirals. Intercalated spirals appear in the third volution, and in the sixth and later volutions they have reached a uniform size with the primary ones and no new ones appear.

A very old specimen of this species has the spire somewhat elongated and the spirals are sharp, with very fine intercalated ones on the last whorl. The liræ of the inner lip and the posterior canal are of the type which occurs in *H. caloosaënsis,* the outline of the aperture being, however, more oval. The aperture of *H. caloosaënsis* is strongly contracted just below the body whorl.

For further description see reference given above.

Localities: Duplin County North Carolina (Nat. Mus. 112381); Magnolia, Duplin County, North Carolina (Nat. Mus. 114549, 114550, also at Wag. Free Inst.); Natural Well, Duplin County, North Carolina (Nat. Mus. 114548).

Horizon: Miocene (?) (If *H. caloosaënsis* is Pliocene, then *H. equalis* is probably not Miocene, and should normally occur with if not later than *H. caloosaënsis.* The Pliocene age of this latter species is accepted by all authorities.)

HEILPRINIA EXILIS (Conrad).

1832. *Fusus exilis* CONRAD, Foss. shells Tert. Form. N. Am., p. 17, pl. 3, fig. 2.

This is another modification of the type of the genus. The protoconch has not been observed, but it is most probably of the same type as that of *H. caloosaënsis.* The shoulder in the earliest whorl observed is concave, with three strong spirals at the angle. The lower of these spirals is barely visible above the suture, the succeeding whorl covering its lower half. The first spiral on the shoulder next above the peripheral spirals is strong and sharp. The next one is weaker. This prominence of the first of the shoulder spirals gives the whorl a rounded appearance. This feature becomes more accentuated as the shell grows older. Ribs continue through five whorls, then quickly disappear and only strong, subequal and sharp spirals remain, between which are single finer ones. The primary spirals are about equal on the shell, there being seven and later eight of these between the sutures with intercalated secondary spirals between all. The outline of the aperture is more oval still than that of *H. equalis.* This latter species is intermediate between *H. exilis* and *H. caloosaënsis.* In *H. exilis* the aperture and general form approach closely *Fusus closter* from the West Indies, except that the species is somewhat less stout. There is some variation, however, in the proportional length and slenderness of the spire in *H. exilis.*

The young of this species agrees well with *H. caloosaënsis,* while the later whorls are more advanced than any in that species. (Advance is not used here in the sense of progression, for the change is in reality a degeneration. There is, however, an advance along the path followed by these species in their development, both ontogenetic and phylogenetic.)

Locality: Alum Bluff, upper beds Florida (Nat. Mus. 97493).

Horizon: Miocene (Transition Oligocene to Miocene, Dall).

HEILPRINIA TIMESSA (Dall).

1889. *Fusus timessus* DALL, Blake Moll., vol. 2, p. 166.
1890. *Fusus timessus* DALL, Tert. Faun. Florida, pt. 1, pl. 7, fig. 6.

This shell in its spire agrees most closely with *H. exilis* from Alum Bluff (upper bed), Florida. It has, however, the contracted aperture in the adult, which marks the stout variety of *H. caloosaënsis,* but this is much less marked in the young. The protoconch is of the same type. It is solid, as shown by broken specimens. The bicarinate aspect of the early whorls is strongly marked from the beginning, owing to a covering up of the third spiral. The whorls have a somewhat more rounded aspect, as in the later stages of *H. exilis.* The ribs are strong, in some specimens even bulging. They die out toward the end of the fifth volution, after which there are only faint undulations. The spirals are very sharp; secondary spirals appear toward the end of the ribbed whorl.

The character of the sculpture of the adult is like that of *H. exilis.* An immature *H. timessus* superposed on an *H. exilis* of about the same age shows only a slightly more contracted lip in the former—the difference is not so great as is that between the two varieties of *H. caloosaënsis.*

H. exilis and not *H. caloosaënsis* appears to represent the ancestral form of *H. timessus.* The species has changed very slightly since the time of the Alum Bluff beds. The remarkable contraction near the beginning of the anterior canal, which is so like that of *H. caloosaënsis,* is in both cases probably a senile characteristic, as suggested to the writer by Dr. Dall.

Localities: Station 2316, Gulf of Mexico, 50 fathoms on coral, temp. 74 degr. Off Key West (U. S. Fish Com. Nat. Mus, 93652); Station 2134, 254 fathoms on sand, south of Cuba (Nat. Mus. 93653); Station 2404, Gulf of Mexico, 60 fathoms on sand, between Mississippi delta and Cedar Keys (Nat. Mus. 83495); Station 2411, Gulf of

Mexico, between Tampa and Tortugas, 27 fathoms on sand (Nat. Mus. 93651).

HEILPRINIA BURNSII (Dall).

1890. *Fusus burnsii* DALL, Tert. Moll. Fla., pt. 1, p. 126.

This species has the *H. exilis* type of whorl and sculpture, but is longer and more slender. The bicarination of the early whorls is marked. The shoulder is not so concave as in *H. exilis,* but the spirals and method of intercalation are similar. The fifth or sixth whorl of *H. exilis* has in general the character of the second to the fifth whorls of *H. burnsii.*

Locality: Petersburg, Va. (Nat. Mus. 97492).

Horizon: Miocene.

HEILPRINIA BARBARENSIS (Trask).

1855. *Fusus barbarensis* TRASK, Proc. Cal. Acad. Nat. Sci., vol. I, p. 41.

1903. *Fusus barbarensis* TRASK, ARNOLD, Pal. and Strat. San Pedro, Cal., p. 224, pl. IV, fig. 15.

The protoconch of this species is worn in nearly all the specimens seen, but in one the sculpture of *H. caloosaënsis* was noted. The riblets on the final portion of the protoconch merge into the ribs of the conch.

The conch shows three strong central spirals, the lower of which is just above the suture. Intercalated spirals appear on the fourth whorl of the conch. The angulation of the whorls is never very pronounced, and the canal is slightly deflected. In many individuals the last whorl or two are ribless.

This species agrees very closely with *H. burnsii,* which is slightly more angular, with thicker ribs and stronger central spirals. The intimate relation of these two can not be questioned.

Localities: Dead Man's Island, San Pedro; also various localities along the west coast of America (Nat. Mus. 124746); Santa Barbara (Trask).

Horizon: Pliocene.

HEILPRINIA ROBUSTA (Trask).

1855. *Fusus robustus* TRASK, Proc. Cal. Acad. Nat. Sci., vol. I, p. 41.

1903. *Fusus robustus* TRASK, ARNOLD, Pal. and Strat. San Pedro, Cal., p. 226.

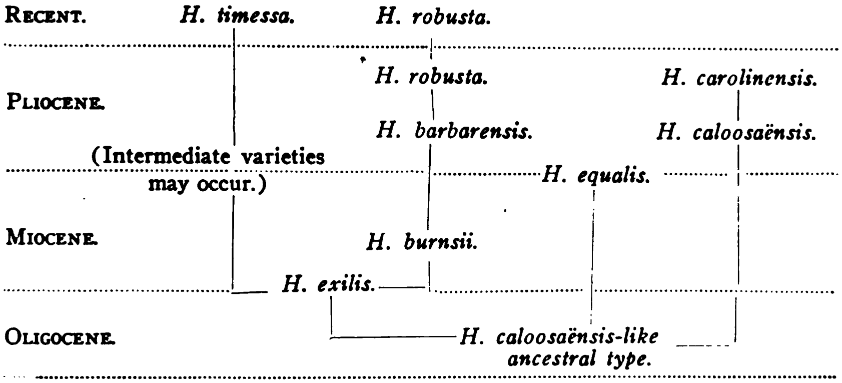
This species is like the preceding when young, but has a more flattened shoulder and more bulging whorls in the adult. The specimens are shorter and not so slender. It is clearly a descendant of the preceding species.

Locality: Fossil—San Pedro (Nat. Mus.); Recent—Santa Barbara, California (Nat. Mus. 7157, E. Jewett, 32399, Stearns coll.); Catalina Island (Nat. Mus. 32340, Stearns coll.).

Horizon: Pliocene to Recent.

Fusus rugosus Trask (Arnold), p. 226, pl. IV, fig. 7) appears to belong here.

If we accept the geologic horizon as given for these species,* we have great difficulty in arranging the species in their proper biologic as well as geologic relation. The following may serve as an attempt:



15. THE GENUS **EUTHRIOFUSUS** Cossmann.

This generic name was proposed by Cossmann (Paléoconchologie comparée 4me liv., p. 27, Oct., 1901) for *Fasciolaria burdigalensis* Basterot, a type which had been frequently referred to *Fusus*. I had previously used the generic name *Fusiolaria* in manuscript for this species, but Cossmann's name having been published has priority. The following generic diagnosis is new.

Fusiform shells with condensed spire which approaches that of *Fulgur*. The protoconch (pl. XVIII, fig. 16) is turbinate, consisting of about two smooth apical whorls, gradually increasing in size, followed by a whorl or more with strong oblique, slightly concave riblets. It gradually merges into the conch, in which the ribs are vertical and extend from suture to suture. An angulation appears in the first whorl of the conch, outlining a shoulder, which later on becomes concave from the development of a posterior canal and a corresponding subsutural band. Spirals numerous, crowded, intercalations appearing in the nepionic whorls. In the neanic whorls the ribs begin to disappear and are found as nodulations only on the periphery of the later whorls in most cases, though they sometimes persist throughout (in retarded species).

Genotype: Fasciolaria burdigalensis Basterot.

EUTHRIOFUSUS BURDIGALENSIS (Basterot).

(Plate VIII, figs. 1–8, 16, 20, 22; Plate XVIII, fig. 16.)

1820. Le Fuseau de Bordeaux De France, Dict. Sci. Nat., T. XVII, p. 541.

1825. *Fasciolaria burdigalensis* BASTEROT, Mem. Soc. d'hist. Nat. Paris, T. 2, p. 66, pl. VII, fig. 11.

1827. *Fasciolaria burdigalensis* GRATELOUP, Bull. Soc. Linn. Bord., T. II.

---

* See Dall, Table of Tertiary Horizons.

1840. *Fasciolaria (Fusus) burdigalensis* GRATELOUP, Conch Foss. Tert. L'Adour, pl. II, fig. 6, 7, 11.

1856. *Fusus burdigalensis* HÖRNES, Foss. Moll. Tert. Beck. Wien, p. 296, pl. 32, figs. 13, 14 (with bibliography).

1901. *Euthriofusus burdigalensis* COSSMAN, Ess. Pal. Comp. 4me liv., p. 28, pl. 1, fig. 1; text fig. 14.

Since De France applied only a French name to this species, merely listing it without description, he can not be considered the author of the specific name, as is generally done. Basterot's description and figure are the first published, and as he was the first to use the specific name he must be considered its author. Basterot's figure is of a specimen similar to that given in Plate VIII, fig. 6, and described below. The protoconch is of the type described under the genus.

Var. TUBERCULOSUS Grateloup (fig. 6).

(Plate VIII, figs. 1-3.)

"Anfract. ad suturas tuberculiferis" (Grateloup).

The following description applies only to the specimens figured, with others from the same locality. They appear to be referable to Grateloup's variety.

The early (nepionic) whorls of the conch are round with simple ribs extending from suture to suture, and crossed by spirals of moderate strength. In the smaller specimen figured there are nearly three volutions of this type. In the neanic stage the shoulder becomes flattened, and the peripheral angulation appears. This stage merges into the ephebic, in which the ribs become restricted to the body of the whorl, the shoulder remaining ribless and slightly concave in contour. The spirals have become faint on the adult portion of the shell. On the periphery the ribs cause a nodulation, but this is subdued.

Locality: Leognan, France (M. C. Z. 1321).

Horizon: Miocene.

This is the most primitive variety seen. It retains the simple ribbed character through the adult.

Var. CARINATUS var. nov.

(Plate VIII, figs. 4, 5.)

In this variety and in the succeeding ones the whorls are angular almost from the beginning, though the first whorls may show a subangular or almost rounded contour. The ribs cause a strong tuberculation at the periphery, and this, together with the flattened shoulder and the numerous spirals, gives the young shell a strong resemblance to *Fusus rostratus*. The ribs become obsolete in the fourth or fifth whorl, but the angulation continues in the form of a faint keel to the end. In the more primitive types the ribs persist as nodules on the keel, thus connecting this variety with the preceding one. Generally, however, the nodules disappear after a while and the keel or carina alone remains. In old individuals the keel may disappear, this portion of the whorl having the characters of the typical form of the species.

Localities: This and the succeeding varieties are found in great abundance in the vicinity of Bordeaux, and in the Vienna Basin. The detailed localities are given below.

The Typical Form of the Species.

(Plate VIII, fig. 6; also figs. 7, 8.)

Basterot's original description is as follows:

"F. testa transverse presse lineolata, lineis inæqualibus; anfractibus superioribus solum plicatio, subtuberculatis."

In this form the keel is lost early, the last whorls of the conch being rounded in contour. In some specimens the keel is not at all developed, and the rounded whorls follow immediately upon the subangular ribbed whorls. Spirals are very numerous, increased by intercalation, which becomes prominent in the fifth whorl.

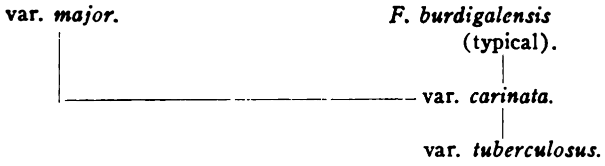
Var. MAJOR Grateloup (fig. 7).

(Plate VIII, fig. 22.)

"Anfract. carinatis ad medium subnodosis." (Grateloup.)

This variety is large and robust. Following the tuberculated stage a carina appears on which spines of moderate strength are formed. These are of the type found in *Fulgur carica,* though they are not so pronounced as in that species. Some of the specimens of this variety have a striking resemblance to species of *Fulgur* from the American Tertiary this resemblance being due, however, to parallelism and not to genetic relationship. These spines appear in some specimens after the disappearance of the tubercles, and the formation of the carina stage (Pl. VIII, fig. 8). They thus indicate a distinct line of development for this variety.

The relations of these varieties may be expressed as follows:



A form identical with Basterot's typical form was figured by Grateloup under the name var. *sublævigata* with the following description: " Testa minore fragile laevigata."

There is some variation in the slenderness of the species, but most individuals have a strongly convex or bulging body-whorl. All specimens show a strongly lirate outer lip, a strong posterior canal, a pronounced transverse plication on the columella, just below the canal, and usually a faint oblique grove on the columella.

Localities: The localities given by Basterot for this species are Leognan, Saucats, and Merignac, France. In the following list the numbers refer to the collections of the Museum of Comparative Zoology.

Var. *tuberculosus* Leognan (M. C. Z. 1321); Dept. Landes (M. C. Z. 1323); Castel Arquato (?)* (M. C. Z. 1324); Cabannes-St. Paul, Dax (1329); Leognan et Saucats (27802).

Var. *carinatus* Bordeaux (1315, 1316); Paris Basin (?)* (1317, 1318); Leognan et Saucats (1319).

Typical form: Leognan et Saucats (1320, gerontic, 27801); Bordeaux (27803, 27804, also young 1322, accelerated, 1314).

Var. *major:* Steenabrunn, Vienna Basin (1327, 1328); Leognan et Saucats (27800).

Besides the varieties given above, the following have been named by Grateloup: var. *scabra, contorta, aspera, calcarata, plicata, dubia.*

Horizon: Miocene.

C. PHYLOGERONTIC FUSIDÆ.

15. THE GENUS **CYRTULUS Hinds.**

(1843. Hinds, Ann. and Mag. Nat. Hist., vol. XI, p. 256.)

This genus was made by Hinds for the reception of a remarkable gastropod shell found in the Pacific Islands. In its young stages this species is a typical *Fusus*, and might be classed with the *colus* series, with the species of which it agrees in all its general characteristics. The adult whorls, however, show a remarkable deviation from this slender Fusoid growth, consisting of thick irregular whorls, loosely wrapped about one another with a complete loss of shoulder, spirals, ribs and other surface features, and with a complete obliteration of the characteristic form of the young.

This type of structure, which may be designated melongenoid, from its characteristic occurrence in *Melongena melongena* and related species, is essentially an accentuated development of old age characteristics of the type found in normal Fusi in senescent individuals. In the present type it has become an established characteristic and from a gerontic feature has been pushed back to the ephebic and even the late neanic stage through the operation of the law of acceleration. Species of this genus, then, must be considered as phylogerontic Fusi, *i. e.*, species which are typical Fusi when young, but when adult are characterized by structural features found only in extreme old age individuals of the normal *Fusus* series.

It has become customary to unite this genus with the Eocene genus *Clavilithes* described earlier by Swainson. These two genera have, however, no genetic relation whatever, belonging to entirely distinct families of gastropods, and having only an external resemblance in their respective adult stages. This resemblance is often very close when the adult stages are alone considered, but the great differences are at once shown when the young are examined. This resemblance is simply a case of parallelism, in which features of the same type recur in corresponding stages of otherwise entirely distinct individuals. This is a case similar to the noncoiling of the Cretacic Ammonoids, where this feature recurred in a number of phylogerontic individuals belonging to entirely distinct genetic series. To class *Cyrtulus* and *Clavilithes* together is as great a mistake as to unite the genera *Macroscaphites* and *Ancyloceras* under the same generic name, simply because they are both partly uncoiled Ammonoids.

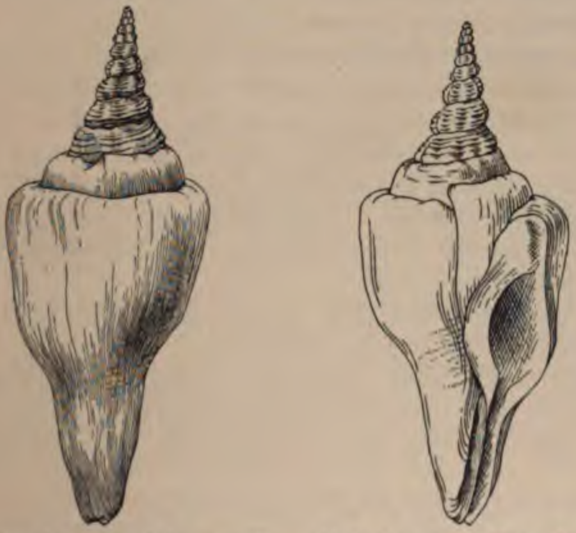
---

* Probably an error.

CYRTULUS SEROTINUS Hinds.

1843. *Cyrtulus serotinus* HINDS, Ann. Mag. Nat. Hist., vol. XI, p. 257.
1844. *Cyrtulus serotinus* HINDS, Zoöl. Voy. H. M. S. Sulphur, vol. 2, p. 13, pl. 1, figs. 12, 13.

The protoconch of this species has been fully preserved on only one of the specimens seen (Am. Mus. Nat. Hist.), though another specimen (Nat. Mus. 91755) and several others in the American Museum show the last portion. It is prominently developed, consisting



FIGS. 13 and 14. *Cyrtulus serotinus.* Coll. Bost. Soc. Nat. Hist., 278.

f nearly two and a half volutions. It ends abruptly with a varix, and he normal round-whorled and ribbed type of *Fusus* conch begins as bruptly; the last whorl and a quarter of the protoconch are finely ibbed vertically as in *Fusus*, with which this portion agrees perfectly.

The initial whorl, however, is not so swollen and elevated as is usual in *Fusus,* but is rather depressed. In spite of this difference in the initial whorl the final portion of the protoconch and the early whorls of the conch are so typically of the *Fusus* type, that the derivation of *Cyrtulus* as represented by this species from *Fusus* can not be doubted.

It is to be noted that the ribs of the protoconch are more numerous than in *Fusus,* and are closely crowded. There is a suggestion of the *Falsifusus* type of protoconch in the apical part, but the second whorl is typically Fusoid.

The conch is at first indistinguishable from a young *Fusus* of the *colus* series. The whorls are round with rounded ribs separated by interspaces of about their own width. After seven or eight whorls of this type the *turriculus* stage comes to an end, being slowly replaced by the *toreumus* stage. The shoulder angle it at first barely defined, being indicated by the prominence of two central spirals. At this stage intercalated spirals first appear. The shoulder angle gradually becomes more distinctly defined, thus fully establishing the *toreumus* stage. With this the spirals become less sharp, the ribs disappear and the whorls become irregular, the later added portions reaching up onto the earlier whorls. The angulation and the tubercles disappear, and the spirals become more and more obsolete. The whorl becomes smooth, thickened and enveloping. The posterior canal of the aperture, always a gerontic feature, becomes strong and causes a shelf or flattened shoulder on the upper portion of the whorl, next to the suture. The spindle becomes more enveloped, and its form obliterated as the ephebic whorls of this phylogerontic species are thickened. This results in the production of a melongenoid form. The aperture becomes elongate as in *Pyrula, Fulgar,* etc., and in extreme cases a tendency to uncoil and form an umbilicus is shown. This melongenoid portion of the shell is covered by a smooth brown periostracum. The preephebic whorls show the coloration of *Fusus.*

An old specimen (Nat. Mus. 130896) shows three whorls wrapped around each other on about the same plane.

Localities: Indo-Pacific (Nat. Mus. 130896, 91755, Dall); Pacific Islands (B. S. 278, also Mayo coll.); Nonkahiva, Marquesas group, S. Pacific (M. C. Z. 964, 963, Am. Mus. Nat. Hist., numerous specimens).

Habitat: In nine fathoms among sand, Hinds (Tryon).

15. THE EOCENE CLAVILITHOIDS.

Under this heading will be described the various species of Eocene Fusoid shells which have assumed a melongenoid growth and are comparable to *Cyrtulus* or *Clavilithes,* with which latter they are generally classed.

CLAVELLOFUSUS gen. nov.

The species of this genus are generally placed under *Clavilithes,* and all of them are united with *Clavilithes parisiensis* (Mayer-Eymar) (=*C. deformis* (Solander) Cossmann) which is the *C. longævus* (Lamarck not Solander) of most authors. Even so high an authority as Mons. Cossmann refers all the species of this genus to that one species of a genus which, though related to the present one, is nevertheless quite distinct.

The genus is characterized by the long slender spire, the whorls of which in the more primitive species rest upon each other in the manner of the slender Fusi. The ribs are strong and far apart, and the protoconch consists of not more than two and a half volutions, the last one of which is sparingly ribbed and the first obliquely erect as in *Fusus.* The whole protoconch is minute and markedly different from the coarse many-whorled protoconch of *Clavilithes* with its depressed "naticoid" apical whorl. The sutural shelf is abrupt in this genus, delimited by a sharp angle, and either horizontal or sloping slightly inward. The shell has considerable resemblance to the recent *Cyrtulus,* but differs from that genus in the character of the young conch as well as in the details of the protoconch. Finally *Cyrtulus,* the modern fuso-melongenoid, is a direct descendant of the modern Fusi, while *Clavellofusus,* the Eocene fuso-melongenoid, appears to be a descendant of the Eocene Fusi, and is unknown outside of the Paris Basin.

Genotype: Clavellofusus spiratus sp. nov.

CLAVELLOFUSUS SPIRATUS sp. nov.

(Type Plate I, fig. 23; see also Plate I, figs. 17, 20 and 26; Plate XVIII, fig. 4.)

The protoconch of this species has only been seen in two specimens, in only one of which (Acad. Sci. 8024, Plate XVIII, fig. 4) it was completely preserved. It is minute and Fusoid in its apical portion, but consists of about two and a half volutions, a character never found in *Fusus,* but characteristic of *Cyrtulus.* The second whorl is scarcely larger than the first, and in the last portion is marked by faint vertical riblets which are very obscure in the specimen illustrated, but in a specimen in the collection of the Museum of Comparative Zoölogy (1099) these vertical riblets are better shown though still faint. They are thin and smooth. There is no final varix, but the protoconch stops abruptly and the ribbed conch begins as abruptly. In one specimen (M. C. Z. 1097) faint revolving spirals are shown on what appears to be the final portion of the protoconch; these cease abruptly and the coarse-ribbed conch begins as abruptly. The protoconch appears to be umbilicated, the umbilicus disappearing on the completion of the protoconch. In the illustrated specimen a few strong vertical riblets occur toward the end of the protoconch. They are rather distant and are followed by the ribs of the conch. The protoconch of this genus, therefore, combines the characters of *Fusus* and *Clavilithes,* and this, together with the characters of the conch, indicates that *Clavellofusus* occupies a position intermediate between *Fusus* and *Clavilithes.*

The conch begins with nearly uniformly rounded whorls, with equal and uniform ribs, which, however, quickly become swollen in the center, and then die out towards the suture. They are widely separate and crossed by uniform spirals. In some cases the ribs are separated by interspaces equal to three or four times their own width, and the spirals generally show a perfect gradation in thickness and in spacing, from the periphery to the sutures. Intercalated spirals appear in about the fifth or sixth volution.

All the whorls of the early stage are globular, and embrace about a fourth of the preceding whorl. The spire is, therefore, much more elongated and slender than in species of *Clavilithes.*

In the early neanic the ribs change from a definite sharp and distinct outline to an ill-defined one, becoming more of the nature of undulatory wrinkles. In the later neanic they become obsolete, as do also the spirals. Intercalation begins in the late neanic, seldom earlier.

The ephebic whorls are globular at first, and free from ribs or spirals. A very faint shelf is developed next to the suture which gradually grows broader. This shelf is caused by the development of a deep and strong posterior canal, and it is accentuated by the slight convexity of the later whorls, by their strong embracing of the preceding whorls up to or beyond the middle and by the consequent slight depression of the suture.

In the met-ephebic stage the whorls have changed from a rounded to a cylindrical form, the sides of the whorl becoming parallel to the longitudinal axis of the shell. This gives the shell a rigid appearance which is very marked. The sutural shelf is very pronounced at this stage. It is sharply delimited at the margin, and makes a right angle or something less with the outer face of the shell. It slopes slightly inward from the sharp shoulder angle. This species may be compared with accelerated individuals of *Clavilithes parisiensis,* in which the sutural shelf appears in the *conjunctus* stage. Except for the long spire, it could be considered a parallel to *Clavilithes subscalaris.* The distinctive generic characters allow, however, ready separation.

Injured and gerontic individuals show a decrease in the size of the aperture and a loss of the characteristic sutural terrace or shelf. In such individuals the inner lip also separates from the columella, thus showing a contraction of the aperture on all sides.

The specimen illustrated in fig. 20, pl. 1, is somewhat more accelerated than the typical forms. The stage with round whorls and shelf is short, the whorls quickly becoming cylindrical. In this respect this shell approaches *Clavellofusus macrospiratus.* Fig. 16, pl. I, is a young shell of *Clavellofusus,* still in the ribbed (*Fusus*) stage, which may belong to this species.

Localities: Paris Basin (M. C. Z. 27731, 1098); Soissons (M. C. Z. 1099, 1100); Chaumery (M. C. Z. 27746); Cuise Lamotte (M. C. Z. 27750); Montmiraille (M. C. Z. 27785); Comprigne (M. C. Z. 1096, Type).

Horizon: Lower Eocene.

CLAVELLOFUSUS TUBERCULATUS sp. nov.

(Type Plate I, fig. 19.)

(See also figs. 18 and 22, Plate I.)

This species is less accelerated than the preceding, which passes through the stage at which this species stops. The early stages are as described for *C. spiratus,* there being six or more of the ribbed whorls (counting those which are broken away). In the last two whorls before the shell becomes smooth the ribs gradually become obsolete, finally disappearing altogether. The spirals, however, continue for a time. This gives two short stages comparable to the *dameriacensis* and *conjunctus* stages in the *Clavilithes* series.

Thus, the penultimate whorl is free from ribs, but marked by spirals. It is rounded and is closely appressed to the preceding one, there being no sutural shelf. This may be compared to the *subconjunctus* stage. The spirals gradually become obsolete, the shell then being comparable to *Clavilithes conjunctus.* Before the complete disappearance of the spirals, the sutural shelf appears, which is characteristic of the last whorl, this retaining its convex contour, but being free from spirals. This is the adult stage of this species, judging from the size of the shell. It corresponds to the late neanic or early ephebic stage of *C. spiratus* which passes beyond in the adult stage, where it assumes a cylindrical form of whorl.

Specimen fig. 18 (pl. I) may represent a young of a somewhat accelerated individual of this species, though it is perfectly possible that it might in the adult have assumed a cylindrical whorl, and thus become a *C. spiratus.* The ribs become obsolete in about the sixth whorl, the spirals disappearing shortly after. The shelf appears shortly after the disappearance of the ribs, the contour of the whorl, however, remaining convex. The shell, therefore, is in the *tuberculatus* stage. Specimen fig. 22 is likewise in the *tuberculatus* stage, and judging from the strong convexity of the whorls probably represents an immature *Clavellofusus tuberculatus.* The shelf appears very soon after the disappearance of the ribs, the spirals becoming very faint on the ribless whorls. Fig. 18 is from Soissons, fig. 22 from Cuise.

This species corresponds to *Clavilithes tuberculosus* Desh., which in that series occupies the same stage in development.

Localities: The type specimen is from Cuise (M. C. Z. 27729); Soissons (M. C. Z. 27732).

Horizon: Lower Eocene.

CLAVELLOFUSUS MACROSPIRATUS sp. nov.

(Type Plate I, fig. 28.)

(See also Plate I, figs. 21, 24, 25 and 27.)

This species is the most accelerated of the group, paralleling the French *Clavilithes macrospira* Cossmann, or the British *C. solanderi* Grabau, of which these specimens seem at first sight to be diminutive representatives. The early stages are as in the other species of this genus, but the ribbed whorls are fewer in number. The last of this series of whorls lose their rotund character, the ribs at the same time changing into mere undulations. With the disappearance of the ribs, or even before this, the sutural shelf appears, the whorls at the same time becoming cylindrical. This implies a complete dropping out of the *tuberculatus* stage, *i. e.*, the stage characterizing the adult *Clavellofusus tuberculatus.* This stage generally occurs in unaccelarated species of this and other series, following the ribbed, and preceding the cylindrical-whorled stage. The present species appears, therefore, to be derived from *C. spiratus,* through a process of acceleration by elimination, the *tuberculatus* stage being eliminated.

The majority of the specimens of the genus which have been seen in the collections belong to this species, the group as a whole being strongly accelerated.

In fig. 25 of plate I is shown the young of the most accelerated individual of this series which has yet come under my observation. The ribbed stage is well developed, and while the whorls are still marked by coarse ribs, a sutural shelf appears. At first the whorls continue round, but soon they assume the cylindrical form with the sides parallel to the main axis of the shell. The ribs, however, continue, there being about a whorl and a half, which are furnished with a shelf and ribs at the same time. It might be considered that we have here a ribbed *tuberculatus* stage followed by a ribbed cylindrical or subconic stage.

This is, therefore, an example of an accelerated type, in which one feature (the shelf) has become excessively accelerated, appearing while some of the other primitive features are still retained. In the latter part of the ribbed and shelved whorls the shelf or terrace even projects slightly, suggesting the *scalaris* stage of the *Clavilithes* series (vide *C. scalaris*). There is some considerable variation in the number of ribbed whorls and the appearance of the sutural shelf. This is illustrated in the specimens figured on plate I.

This species occurs with the others of this genus at Cuise in the Paris Basin. It is commonly classed as a variety of *Clavilithes parisiensis* Mayer (= *C. deformis* (Sol.) Cossmann or *C. longævus* (Lamarck) of Deshayes and other authors).

Localities: Cuise (M. C. Z. 1097, 27730); Comprigne (M. C. Z. 27740).

Horizon: Lower Eocene.

Young specimens of this generic series can not generally be placed in the species to which they belong, since all the species have in young stages the characters of more primitive species of the series and assume their true specific characters only in the adult stage. Thus fig. 16 is in the ribbed stage, resembling the most primitive type of the series, of which, however, no representative has been found (unless the Eocene species of *Fusus* be considered such). Certainly if an adult specimen with the characters of fig. 16 were found, it would have to be placed near the true Fusi, since the protoconch and other characteristics of such a species would approach those of that genus. The ribs of the early whorls of *Clavellofusus* are more widely spaced than is the case with any species of *Fusus* I have seen, but this feature may occur in shells which otherwise conform to the characteristics of that genus. This stage then is the *Fusus* stage of the *Clavellofusus* series, just as the young of *Cyrtulus* represents the *Fusus* stage of that series, and clearly indicates the ancestry of that genus. In the *Clavilithes* series, this stage is represented by *C. rugosus*, and is there known as the *rugosus* stage. (For further discussion see beyond p. 105.)

In like manner it will be seen that specimen fig. 18 is in the *tuberculatus* stage, being comparable to an adult *C. tuberculatus* of this series, or an adult *C. tuberculosus* of the *Clavilithes* series. It may remain in this stage, simply increasing in size, or it may develop into a *C. spiratus* by adding a cylindrical whorl.

A constant and very characteristic feature of the species of this genus is the sharp angle between the sutural shelf; and the side of the whorl. This is particularly marked where the whorls have assumed the cylindrical habit of growth. The shelf generally slopes inward and downward, rather than upward as in *Clavilithes* of the Paris Basin, in which the angle is also more rounded. In this respect these shells are similar to *Clavilithes solanderi* Grabau of the English Eocene, in which the same type of shelf exists. The pointed apex and the small size of these shells are also distinguishing features.

Localities: The three species given above, together with intermediate forms, and probably other species, occur together in the Lower Eocene of the Paris Basin.

Horizon: Lower Eocene, Sables inférieurs, Paris Basin (Deshayes).

Synonymy: Fusus longævus var. A. Deshayes, Coq. Foss. env.

Paris, T. II, pl. 74, fig. 21. 1824. *Clavilithes longævus* Lam. var. of authors generally. *C. deformis* var. Cossmann.

THE GENUS **CLAVILITHES** **Swainson.**

This genus was instituted by Swainson in 1840,* as a substitute for *Clavella,* which he had established a few years earlier (1835†) for *Fusus longævus* Lamarck (Deshayes) (= *F. parisiensis* Mayer-Eymar) and allied types. The later generic name would not hold, were it not for the fact, apparently unknown to Swainson, that *Clavella* was used by Oken in 1815 for a crustacean. Swainson included *Fusus noæ* in his genus, a practice carried out by every subsequent writer. That species is, however, strikingly distinct from *F. longævus* of Lamarck and Deshayes, and is here separated under the generic name *Rhopalithes.* Swainson's description leaves no doubt as to which species belong to his genus, for he gives the characteristics of *F. longævus* (*F. parisiensis* May.) and not those of *F. noæ.*

The protoconch of this genus is very striking, and is distinctive, though there are other genera, apparently not very closely related to this genus, which have similar or perhaps even identical protoconchs. The first whorl of the protoconch is depressed and naticoid, with a minute apical portion. The whorl gradually enlarges, but after the first volution the proportional increase in size is much less, so that the whorls produce a nearly cylindrical protoconch. There are from two and a half to four whorls, thus giving the protoconch a distinctly papillose appearance. The protoconch is umbilicated and very generally contains from one to several septa. There is no final varix, and the line of separation between protoconch and conch can not generally be indicated. In some specimens (fig. 15) a sharp line marks a cessation of growth, but whether that is the end of the protoconch or merely a temporary interruption in the building of the protoconch is not clear. The fact that this line is not found in all specimens suggests that it is only an individual characteristic and does not necessary mark the end of the protoconch. This view is strengthened by the fact that similar lines occasionally occur on other parts of the protoconch, where they mark a slight interruption of growth. Sometimes a slightly wrinkle appearance is produced by these lines, which give a faintly ribbe aspect to the protoconch in places. A few simple smooth ribs occu before the normal ribs of the conch appear, and between these smoot ribs are generally to be found faint revolving lines. These do no however, affect the ribs. It is a question difficult to answer wheth this portion belongs to the protoconch or to the conch. As the chan is not a very abrupt one we may assume that the embryonic stag merged gradually into the embryonic, and that hence no sharp line is to be drawn between the two. Judging from analogy with other fusoid shells we are, I believe, justified in relegating this portion with the primitive ribs to the protoconch.

---

* Swainson, "Treatise on Malacology," p. 304, p. 90.

† Swainson, "Elements of Conchology."

The conch always begins with round whorls, which are ornamented by coarse widely separated ribs and by strong sharp spirals. This portion of the shell may be very short, and the ribs may become almost obsolete or the whole shell may consist of rounded, ribbed and spiralled whorls. This latter is the case in the primitive species, such as *C. rugosus,* which might well be separated generically from *Clavilithes.*

In the typical species of the genus the ribbed whorls are succeeded by smooth irregular whorls of the melongenoid type. These show progressive differentiation in the various species, according to the degree of acceleration characteristic of each.

The columella is without plaits.

The genus is confined to the Eocene.

Type: Clavilithes parisiensis (Mayer-Eymar), = *Clavilithes longævus* Lam. (Deshayes) non-Solander.

CLAVILITHES RUGOSUS (Lamarck). (Emend. Grabau.)

(Plate IX, figs. 1–8; also text fig. 15.)

1803. *Fugus rugosus* LAMARCK, Ann. du Mus., t. I, p. 316.
1816. *Fusus rugosus* LAMARCK, Tab. Encyc. Meth., pl. 425, fig. 6.
1823. *Fusus rugosus* LAMARCK, Coq. Foss. Env. Paris, p. 56 (pars).
1837. *Fusus rugosus* DESHAYES, Coq. Foss. Env. Paris, t. 2, p. 519 pars, pl. 75, figs. 4–7.
1889. *Clavilithes rugosus* COSSMANN, Cat. Coq. Foss. Eoc. Env. Paris, p. 174.

The protoconch of this species is papillose, the number of whorls varying from three to four. It is smooth throughout the earlier whorls, but marked in the final (?) portion of the last whorl by smooth narrow vertical riblets which are widely separated. At first the interspaces are smooth, but later revolving lines—the beginning of the spirals—appear, but these do not cross the riblets. The number of riblets varies from three to five.

The conch begins with rounded whorls with strong uniform rounded ribs which are rather narrow and separated by interspaces several times as wide as the ribs. They are crossed by strong sharp and uniform spirals of which from five to six are visible. After a volution or two the spirals in the center of the whorls become stronger and sharper, producing strong cusps at the crossing of the ribs. The latter become stronger, broader and less defined and a subsutural band appears, indicating the presence of a posterior canal.

In the adult the ribs are somewhat less distinctly defined and the subsutural band and posterior canal more profound. Intercalated spirals sometimes appear, occurring at times even in pre-ephebic stages. The shoulder is somewhat flattened, and near the suture becomes slightly concave. The lines of growth are not infrequently strong and imbricating, strongly cancellating the spirals, which are sometimes nodose at the intersection.

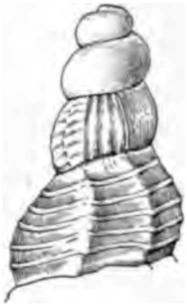


FIG. 15. *Clavilithes rugosus*, the protoconch of fig. 7, pl. IX.

Gerontic characteristics are shown by the separation of the inner lip from the columella, and the consequent formation of an umbilicus (pl. IX, fig. 3). Also by the disappearance of the ribs and the excessive development of the posterior canal.

An elongated variety of this species is figured in fig. 8, plate IX. In this the whorls are loosely coiled, appearing more rounded; the ribs are more pronounced throughout, and secondary spirals are well developed. This latter feature marks this variety as more accelerated in development in this respect, than the normal species.

Localities: Paris Basin (M. C. Z. 1380, 1373, 1377 var., 1378); Grignon (M. C. Z. 1374, 1379, 1375). Var. M. C. Z. 1413, Young M. C. Z. 1125.

Horizon: Calcaire Grossier; Eocene.

CLAVILITHES DAMERIACENSIS (Deshayes).

(Plate X, figs. 5 to 8; Plate XI, fig. 6.)

1866. *Fusus dameriacensis* DESHAYES, Anim. sans vert., T. 3, p. 256, pl. 85, figs. 23, 24.

The protoconch of this species is of the normal papillose type, of a little more than three volutions, umbilicated and with septa. The last portion is furnished with fine vertical riblets which are smooth, but have fine thread-like spirals in the interspaces. This merges into the normal whorls of the conch.

The conch is ribbed and spirally striate from the beginning, the whorls changing from the cylindrical form of the protoconch to a rounded one. They embrace up to the middle of the preceding whorl, thus making the ribbed spire less elongate. This is the chief difference between the young of this species and *C. rugosus*. The ribs, at first strong and widely distant and uniform throughout, increase in strength on the periphery but become obsolete towards the sutures. In the fourth or fifth volution the ribs disappear altogether, while at the same time intercalated spirals appear between the primary ones. The spirals are uniform and equidistant except near the suture, where they are more crowded. The last whorl or two of the conch are ribless, rounded and covered with more or less strongly marked spirals, which become weaker, however toward the end. The subsutural band and posterior canal are well developed and characterize all the whorls from the neanic on. It is generally emphasized by a concavity which marks the upper portion of all the later whorls, and is also faintly traceable on the earliest ones.

The characteristic features of this species are the strongly ribbed young spire, in which there are from three to five volutions, and the spirally striate ribless volutions of the adult. Both these features show that this shell is still quite primitive when compared with the other species of this series, in which the spire is scarcely ribbed, and the last whorls are smooth and free from spirals.

The rounded whorls without ribs, but with spirals, mark the *dameriacensis* stage of the species of this series. When present this stage always follows the ribbed *rugosus* stage. The present species, *C. dameriacensis,* consists of these two stages, the development of both being about equal.

Locality: Paris Basin (M. C. Z. 27750, 27724, 27775, 27778).

Horizon: Middle Eocene, Calcaire Grossier (Desh.).

CLAVILITHES CONJUNCTUS (Deshayes).

(Plate X, fig. 6; Plate XI, figs. 1–5.)

1837. *Fusus conjunctus* DESHAYES, Coq. Foss. Env. Paris, t. 2, p. 527, pl. 70, figs. 16, 17.

1889. *Clavilithes conjunctus* COSSMANN, Cat. Coq. Foss., p. 174.

The protoconch of this species consists of from three to four volutions, and has all the characteristics normal to this series. It merges into the conch.

The conch is spirally striate, the spirals being uniform and equidistant. Towards the end of the first volution undulations appear, and these in some specimens in the collection rise to the distinctness of ribs. They are never very prominent, however, and after two or three volutions they disappear again. Thus the *rugosus* stage is condensed in this species. This is followed by a short *dameriacensis* stage, in which the ribless but round whorls are marked by strong spirals. These spirals are strongest on the upper portion of the whorl, but become faint and finally obsolete on the lower portion. Intercalated spirals appear usually in the second or third volution of the conch, though in some specimens they do not occur until considerably later.

The whorls of the *dameriacensis* stage are succeeded by those of the *conjunctus* type. These, the final and typical whorls of this species, are still rounded but perfectly smooth or with the spirals so weak as to be scarcely visible. This represents the next stage in advance of the *dameriacensis* stage, and when well developed requires a condensation of the earlier stages to make room. On typical specimens between two and three whorls of this type exist, and from one to two whorls of each of the preceding. In some specimens the ribbed *rugosus* stage is scarcely developed.

All the changes are gradual and the stages merge into each other. The variations of this species lie between *C. dameriacensis* and *C. parisiensis,* and the varieties approach the one or the other, according to the smaller or greater amount of acceleration which they have experienced. The greatest variation is in the length of the ribbed portion of the spire, some specimens of this species approaching the more accelerated specimens of *C. dameriacensis* and establishing a complete gradation between the two species.

The concavity seen on the whorls of *C. dameriacensis* is also slightly traceable on the adult whorls of some specimens of *C. conjunctus* (Plate XI, fig. 1). It usually contains faint spirals while the remainder of the whorl is smooth. The concavity is also indicated on Deshayes' figure.

The neanic stage of this species (Plate XI, fig. 3) is the structural equivalent of the ephebic stage of *C. dameriacensis,* the shell in both cases being characterized by the absence of ribs, and by well-developed spirals. The *conjunctus* characters may be assumed long before the shell has reached full size. In that case the young *C. conjunctus* is indistinguishable from the young *C. parisiensis* which passes through a *conjunctus* stage before it attains the *parisiensis* character of the adult. We may, however, assume with good reason that young shells, in which the *rugosus* stage persists long and is succeeded by a *dameriacensis* stage, will probably not pass beyond the *conjunctus* stage, *i. e.,* that these are immature *C. conjunctus.* On the other hand those shells in which the early stages are abbreviated or eliminated, will probably pass beyond the *conjunctus,* and into the *parisiensis* stage; these, therefore, are the young (neanic) of *C. parisiensis.* No sutural shelf or terrace appears on this species, though it may appear in an extremely gerontic individual. Nevertheless, in some adult specimens there is a slight thickening below the suture, producing a subterraciform appearance. This is precisely the character of the whorls of an immature *C. parisiensis.* The adult *C. conjunctus,* therefore, is the structural equivalent of the neanic *C. parisiensis.*

Each stage is characterized only by the features which belong to the adult whorls of the species after which the stage is named. Thus the *dameriacensis* stage is that portion of the shell in which the whorls are round without ribs and marked by spirals. The species (*dameriacensis*) must, however, have these characters in the adult whorls and it must have a *rugosus* stage preceding it. This *rugosus* stage may be long or short—in the typical specimens it is long. We may find, however, specimens in which acceleration is confined to the early stages; *i. e.*, the *rugosus* stage may be condensed and the *dameriacensis* stage remain for a longer time, probably through adult stages. This would still be a *C. dameriacensis,* but a variety in which the early stages are accelerated. Thus specific characters are based on adult characteristics to a large extent; *i. e.,* on the stage which the adult has reached in development. If a specimen should be found in which the *rugosus* stage has been dropped altogether and the *dameriacensis* stage follows on the protoconch, and never reaches the *conjunctus* stage even in the ephebic condition, it might be desirable to call it another species, even though the adult has the true characters of *F. dameriacensis.* It is not likely, however, that acceleration would act so locally for we may expect that the spirals become obsolete and a true *conjunctus* stage appear. In a highly accelerated *C. conjunctus* the *rugosus* stage may be eliminated, but not the *dameriacensis* stage. On the other hand, acceleration may act not in the nepionic but in the neanic stage (Plate XI, fig. 2). The *rugosus* stage may be well developed, and may have strength to resist condensation so to speak, but the *dameriacensis* stage may be less resistant, and hence be eliminated by acceleration. Thus the *conjunctus* stage may follow immediately upon the *rugosus,* without or with but a short *dameriacensis* stage between.

Again, acceleration may act equally on all stages, condensing the earlier ones, but not eliminating any of them. Then the typical form of the species is produced.

Localities: Paris Basin (Cuise) (M. C. Z. 1068); Parnes (M. C. Z. 1065, 1066, 27743); Chaumont (Acad. Sci. 6882); Paris Basin (M. C. Z. 1067, 27764).

Horizon: Middle Eocene, Calcaire Grossier. (Also recorded by Deshayes from the Sables moyens, Upper Eocene.)

CLAVILITHES CONJUNCTUS, senile variety.

(Plate XIII, fig. 10.)

This specimen differs from the normal form of the species in its acceleration of senile characters, which in the present individual appear in the late neanic and early ephebic stages. The chief characteristic is the looseness of the coil at these stages, which results in the production of an external sutural canaliculation. A slight looseness of coiling is observable in some typical young of *C. conjunctus,* and in the present individual a similar slight looseness goes back to the late *dameriacensis* stage. The separation increases steadily, until the specimen at the age and size of the early ephebic of a normal *C. conjunctus* shows a very decided loosening of the last whorl. Coincident with this feature the last whorl has become more cylindrical, departing from the rounded character normal to *C. conjunctus.* The aperture has also become more elongate and narrower, the outer lip being nearly straight instead of uniformly curved as in typical individuals of *C. conjunctus.*

In the character of the whorl and the outline of the outer lip, as well as the profundity of the posterior canal, this shell approaches the young of *C. parisiensis,* but that species has a sutural shoulder or terrace, and not a canal, as in the present individual. The features are sufficient for specific distinction, but since only one specimen is known it is better to consider it a gerontic or highly accelerated individual.

Horizon and Locality: Paris Basin, Calc. gross. (Grobkalk.) Coll. Bronn. (M. C. Z. 1105).

CLAVILITHES PARISIENSIS (Mayer-Eymar).

(Plate X, fig. 10; Plate XI, figs. 7–9.)

1803. *Fusus longævus* LAMARCK, Ann. du Mus., t. I, p. 317.

1816. *Fusus longævus* var. LAMARCK, Encycl. Meth., pl. 425, fig. 4; also *F. clavellarus* var., ibid., fig. 2 *a–b.*

1837. *Fusus longævus* DESHAYES, Coq. Foss. Env. Paris, t. 2, p. 525, pl. 74, figs. 18, 19.

1840. *Clavilithes longævus* SWAINSON, Treatise on Malacology, p. 304, fig. 72 *b.*

1866. *Fusus longævus* DESHAYES, Anim. sans vert., t. III, p. 256.

1877. *Fusus* (*Cyrtulus*) *parisiensis* MAYER-EYMAR, Pal. Pariserstufe von Einsiedeln, p. 89.

1889. *Clavilithes deformis* COSSMANN, Cat. Coq. Foss. Eoc. Env. Paris, p. 173.

Not *Murex longævus* SOLANDER, Brander's Foss. Hants., 1766, p. 22, pl. II, fig. 40, pl. VI, fig. 73.

Not *Murex deformis* SOLANDER, ibid., p. 22, pl. II, figs. 37–38, pl. VIII, fig. 83.

It is very unfortunate that the well-known type species of the genus *Clavilithes,* the *Fusus longævus* of Lamarck, should have to suffer transference from one specific name to another. Since the specific name was preoccupied by Solander in 1766 for a totally distinct species of the British Eocene it can not be retained for the Paris Basin species, the type of the genus. M. Cossmann, the eminent French authority on the fossils of the Paris Basin, has recognized this point, and sought to rectify it by applying Solander's name *F. deformis* to the type species, holding that the French species is identical with the British one to which Solander applied that name. I feel convinced that that is a mistake. The types of Solander's *Murex deformis* were very young specimens, the one in the early nepionic, the other in the early neanic stage. The protoconch in both cases is heavy and irregular, of the type shown in the specimen pl. XIV, fig. 5. The early whorls are also depressed or flattened in the upper exposed portion, thus producing a trochoid rather than a naticoid apex.

It seems to me highly probable that the specimens figured by Solander are the young of the large species so characteristic of the British Eocene, which is herein described under the name *Clavilithes solanderi,* new species, and which Solander figured as a variety of his

Murex longævus (Sol. fig. 93). (See pl. XIV, figs. 5 and 6, and pl. XV, figs. 1 and 2.) It is not improbable, however, that the young specimen of Solander's figure 37 may prove to be the young of *C. longævus* (Solander) not Lamarck (pl. XIV, fig. 8).

This leaves Mayer-Eymar's name *F. parisiensis,* proposed in 1877, as the only available one for the type of the genus *Clavilithes.* This is certainly a most appropriate name, since the species in its typical form is unknown outside of the Paris Basin.

In view of the uncertainty which is attached to the types of Solander's *Murex deformis,* and in view of the fact that this species was based on material too young to allow determination of its true specific relationships, I propose to discard Solander's name *deformis* entirely, and to apply the name *C. solanderi* nom. nov., to the large characteristic species of *Clavilithes* of the British Eocene.

DESCRIPTION OF CLAVILITHES PARISIENSIS.

The protoconch is of the normal papillose type, with minute apex, and naticoid early whorls. No varix has been observed. On the latter part of the smooth portion a few faint vertical plications exist. Faint spirals are visible between.

In all the broken specimens the septum appears as a funnel-shaped, curved closing element of the protoconch. The septum makes about a third volution, so that the tip is perhaps half a volution further within the protoconch. The distal end (tip) of the septum is uniformly rounded and lies free in the cavity of the protoconch with the exception of that portion which lies next to the columella, which is generally united with the latter. The protoconch is still umbilicated at this stage. There is some variation in the form and outline of the septum in different individuals. Septa have also been noticed in later portions of the shell, after the normal characters of the conch have appeared. Similar septa have also been observed in other species of this genus.

The conch begins with whorls which are ribless but marked by strong revolving lines or spirals. These are uniform, subequal, at first closely crowded, later more and more widely separated.

The succeeding portion varies somewhat. In one variety, which is strongly accelerated, the ribs are almost obsolete, the whorls being smooth, except for the spirals (pl. XI, fig. 7). In another less accelerated variety, the ribs are quite strongly developed, of the *rugosus* type, distant and bulging near the center. Intercalated spirals appear in the third whorl of the conch or later. When the ribs are well developed the whorls have the aspect of the young *C. dameriacensis,* from the close coiling of the volutions and the strong development of spirals (pl. XI, fig. 9).

The *rugosus* stage is succeeded by a *dameriacensis* stage, which is usually short and consists of rounded whorls, free from ribs, but ornamented by strong spirals. With the disappearance of the spirals the *dameriacensis* merges into the *conjunctus* stage, which is, as a rule, strongly developed in this species, even though the *dameriacensis* stage should be absent. This is particularly the case in the varieties with a short or obsolete *rugosus* stage, the suppression of which leaves room for the development of the *dameriacensis* and *conjunctus* stages (pl. XI, fig. 7). When, however, the *rugosus* stage persists, the *dameriacensis* and *conjunctus* stages are abbreviated, the *parisiensis* stage following soon after the *rugosus* (pl. XI, fig. 9; pl. X, fig. 10). In this respect fig. 8 of pl. XI is intermediate between fig. 7 and 9 of the same plate. In some accelerated individuals the *rugosus* stage is almost eliminated, but the ribless, spiralled *dameriacensis* stage is well marked. This is followed by the *parisiensis* stage, the *conjunctus* stage being eliminated. In the early stages of the more characteristic specimens of this species the subsutural concavity on the upper part of the whorls, which is characteristic of *C. conjunctus,* is well developed.

In the adult or ephebic stage, a sutural shelf is developed and the aperture contracts until the side of the whorl is parallel to the longitudinal axis of the shell. The body-whorl thus becomes cylindrical. This is the *parisiensis* stage, and when it occurs in conjunction with the *conjunctus* and *rugosus* stages we have a typical *C. parisiensis.* The *dameriacensis* stage may or may not be present, according to the degree of acceleration which the shell has experienced. Variation is also produced by the unequal acceleration of different stages of the shell, one or the other of which may be developed at the expense of the adjoining one. Thus a number of varieties are produced which shade into each other and connect this species with others of this series.

In an injured or gerontic specimen (M. C. Z. 1081, pl. X, fig. 10) the last portion of the last whorl assumes again the features of the *conjunctus* stage. The shoulder disappears and the lines of growth become lamellose and crowded while the whole whorl becomes more globose. Similar features are seen in injured specimens of all sizes. The shoulder expression of the whorl below the suture is not at once regained, but a rounded indefinite form, lying between *C. parisiensis* and *C. conjunctus* is produced. One specimen only has been observed (M. C. Z. 1093) in which the last part of the last whorl, of a moderate sized specimen had a projecting shelf similar to that of *C. scalaris.* The specimen is from Auvers.

Localities: Chaumont (M. C. Z. *1073*, Agassiz); Parnes (M. C. Z. 1075, Baucault, 27753, Duval); Grignon (M. C. Z. 1079, *1081*, Duval; Acad. Sci. 8025, 6892); Mt. St. George (Cossmann); Chaumery (M. C. Z. 1076, Koninck, 27787); Cuise (M. C. Z. 1095); Paris (M. C. Z.

1069, *1072*, 27752, 1078, 1118; 27725, 27755, 27756); Auvers (M. C. Z. 1093); Loins (M. C. Z. 27758).

Horizon: Eocene (Middle; Deshayes). Calcaire grossier.

CLAVILITHES TUBERCULOSUS (Deshayes).

(Plate X, fig. 4.)

1837. *Fusus tuberculosus* DESHAYES, Coq. Foss. Env. Paris, t. 2, p. 522, pl. 73, figs. 14, 15.

1889. *Clavilithes tuberculosus* COSSMANN, Cat. Coq. Foss., p. 174.

The shell here illustrated, though immature, appears to be a distinct species derived from *C. dameriacensis.* I have identified it with Deshayes' *Fusus tuberculosus,* which, as far as description and illustration allow us to judge, has the characters found in the shell under consideration. The early stages are like those of *C. dameriacensis,* the *rugosus* stage being represented by a number of ribbed whorls and the *dameriacensis* stage by spirally striate rounded whorls. Toward the end of the latter, however, the sutural shelf characteristic of *C. parisiensis* is developed, without the change from a rounded to a cylindrical form of whorl. This association of *dameriacensis* and *conjunctus* type of whorl with *parisiensis* shelf appears to be characteristic of this species and indicates an unequal acceleration, where a feature characteristic of a late stage in one series is added to those characteristic of an earlier stage in the same series. In other words, one feature is accelerated while the others are correspondingly retarded in development. The subsutural concavity characteristic of *C. conjunctus* is strongly developed in this species, and to this is due the rotund character of the whorl, which is ordinarily lost with the development of the sutural shelf. This shelf is an independent development in this species.

The ribs of the *rugosus* stage of this species are usually much stronger than those of the corresponding stage of *C. dameriacensis,* and give the characteristic tuberculous appearance at the suture. Since the specimens which I have seen are all immature it is impossible to be certain that they do not represent the young of the next species (*C. subscalaris*). As will be shown later, *C. subscalaris* passes through a stage (neanic) which is the structural equivalent of the adult (ephebic) stage of *C. tuberculosus.*

A specimen from the middle Eocene of Parnes (Acad. Sci.) which has been identified by Cossmann with this species has more the characters of an excessively thick-set and short-spired *C. rugosus.* The whorls are bulging, and the ribs are far apart and swollen in the middle. They become obsolete toward the sutures, below which there is a strong concavity. On the last whorl the ribs are fainter, and the concavity is strong. There is no sutural shelf, and the spirals are strong. This is probably an immature shell in which the shelf has not yet appeared. The shelf is shown in Deshayes' figure of this species.

Localities: Paris (M. C. Z. 1116, Koninck); Parnes (Acad. Sci. 6901, Cossmann, M. C. Z. 27760); Grignon (B. S. 1412).

Horizon: Middle Eocene, Calcaire Grossier.

CLAVILITHES SUBSCALARIS sp. nov.

(Type Plate XII, fig. 9; var. Plate X, fig. 1; Plate XII, figs. 1-3, 7, 8, 10-12.)

This species is generally classed with *C. parisiensis* to which it bears a close resemblance in many respects, and especially to accelerated individuals of that species. It is, however, a much more accelerated species and typical individuals are readily distinguished. The early stages are generally much condensed, and the characteristic sutural shelf appears in the early whorls, usually before the characteristics of the early stages have disappeared.

In the pre-ephebic stages this species has all the characters of *C. tuberculosus,* but it passes beyond that stage, assuming the cylindrical shelved whorls characteristic of *C. parisiensis* with which it is identical only in the ephebic stage.

The diagnostic characters may be summed up as follows: Protoconch and earliest volutions normal. The ribbed stage occupies usually a few whorls only. Succeeding ribless whorls are generally convex, but soon merge into the cylindrical ones. The sutural shelf appears with the disappearing of the ribs, sometimes earlier. It is strongly developed, often projects outward to some extent, but does not form the distinct rim of *Clavilithes scalaris.* Adult stage as in *C. parisiensis.*

The most prominent character of this species is the early appearance of the sutural shelf which is also characteristic of *C. scalaris.* But that species forms a projecting sutural rim or flange in the adult which does not occur in *C. subscalaris.* There are many intermediate forms which connect this species with *C. parisiensis,* and hence some authorities consider them conspecific. It may, however, be emphasized that similar gradations exist between practically all the species of the genus.

The variations of this species are readily determinable from a consideration of the various ways in which the stages can be combined. By acceleration of one and retardation of another character, distinct and important varieties are produced which form the connecting links between the primitive species on the one hand, and the highly progressive on the other, thus showing an uninterrupted development governed according to the law of acceleration.

An individual showing all the stages is illustrated in fig. 7 of pl. XII. In this specimen about two whorls are in the *tuberculosus* stage, followed by one and a half whorls with *parisiensis* characteristics. A strongly accelerated variety is shown in fig. 3, pl. XII, and a slightly less accelerated one in fig. 2 of the same plate. In the first of these specimens the protoconch which consists of three and a half volutions is followed by a smooth and spirally striate rounded whorl. This and the succeeding whorls embrace each other closely, thus producing a short and swollen spire. Faint undulations occur on some of the whorls but there are no ribs. There are two spirally striate whorls without shelf (*dameriacensis* stage). The shelf appears in the third whorl. Toward the end of the fourth whorl the spirals have become obsolete and the whorl changes from rounded to cylindrical. A very pronounced posterior canal is developed. In fig 2 the whorls embrace in a similar manner but about two whorls of the *rugosus* stage (ribbed) are retained. With the disappearance of the ribs the sutural shelf makes its appearance, and later the spirals disappear. A *subtuberculosus* and a *tuberculosus* stage is produced. This is followed by a short *parisiensis* stage. Fig. 1 of plate XII represents another accelerated variety. Here the shelf appears while the ribs are still represented by undulations (this may be called a *rugoso-tuberculosus* stage). This is succeeded by a very short *tuberculosus* stage (the spirals having disappeared with the ribs), and this quickly merges into the *parisiensis* stage. The *rugosus* stage is very persistent, there being at least four complete volutions. Fig. 4 of plate XII represents an immature *C. parisiensis* which has scarcely passed beyond the *conjunctus* stage. The last part of the whorl shows a deformation.

A strongly marked variety from Paris is shown in fig. 8 of plate XII. This might well be considered a distinct species. The spire is short and the last whorl is thick, condensed and with a long anterior canal. The protoconch is furnished with a few narrow vertical riblets. These are followed by the normal ribs of the conch which are characteristic of about three volutions. A sutural shelf is formed, before the ribs fully disappear, giving a short *rugoso-tuberculosus* stage. A short *subtuberculosus* stage (like *tuberculosus* but with spirals) follows, and is in turn succeeded by a smooth *tuberculosus* stage. These three shelved and round-whorled stages are very short, and soon give way to the cylindrical whorls of the *parisiensis* stage. Thus the present variety of *C. subscalaris* consists of a *rugosus*, a short *rugoso-tuberculosus*, a short *subtuberculosus*, a longer *tuberculosus* and a well-developed *parisiensis* stage.

Figs. 5 and 6 of plate XII show young specimens of accelerated varieties of perhaps this species, but more probably of *C. scalaris*. In fig. 5 the ribbed stage is absent altogether, having been dropped out (acceleration by elimination). The whorls are all round and spirally striate, intercalated striæ arising in the third whorl. The sutural shelf appears while the spirals still continue (*subtuberculosus* stage).

In fig. 6 the ribs are very faint, but otherwise the specimen is like the preceding except that in the last portion of the last whorl the shelf projects slightly outward as in *C. scalaris.* This occurs before the disappearance of the spirals which are simple, or with intercalations only in the upper part of the whorl. In fig. 10 is shown a young specimen in the *tuberculosus* stage, the shelf appearing at about the time of the disappearance of the spirals. In fig. 11 is shown a specimen in which the shelf is faintly marked in the ribbed stage, though perhaps scarcely sufficiently to be considered a *rugoso-tuberculosus* stage. The *subtuberculosus* stage is very short, having been practically eliminated. The *tuberculosus* stage occupies about half a volution, and is followed by the *parisiensis* stage. In figs. 1, 10 and 11 the ribbed whorls (*rugosus* stage) are unusually persistent.

Fig. 9, the type of the species, is a strongly accelerated individual of the *Clavilithes* series. The shelf appears in the fourth whorl before the ribs have disappeared (*rugoso-tuberculosus* stage) and rapidly becomes prominent. The spirals disappear with the ribs, thus cutting out the *subtuberculosus* stage. The *tuberculosus* stage continues for about half a volution or more, and then merges into the *parisiensis* stage. The shelf becomes very prominent and begins to project beyond the shell below, thus faintly approaching the characters of the *scalaris* stage. This stage, however, does not occur.

Fig. 12 shows a differently accelerated individual. The *rugosus* stage is short and faintly ribbed, the shelf not being formed until the disappearance of the ribs. A short *subtuberculosus* and longer *tuberculosus* stage occurs, and then the *parisiensis* stage becomes strongly developed. This, therefore, is a typical *C. subscalaris* only with the earlier stages differently accelerated than in fig. 9.

A specimen from Loins, France (M. C. Z. 27754), is extremely accelerated. There are two and a half normal *rugosus* whorls, then a subsutural thickening occurs, which soon develops into a shelf. This though narrow is pronounced. There are nearly two volutions which have ribs and a shelf, the latter even projecting slightly after the *scalaris* manner. The spirals disappear half a volution or more before the ribs, the latter gradually passing into undulations. Shortly after the disappearance of the ribs the whorls become cylindrical and the shelf is no longer rimmed.

Localities: Paris (M. C. Z. 1077, Bronn; 1071, Lyell; 1102, Duval, 1070; 27748, Duval; 27757, Dyer); Cuise-Lamotte (M. C. Z. 27749); Chamery (27744; 27745 Type; 27769 young?); Nanteuil (M. C. Z. 1074, Reneault); near Nantes (M. C. Z. 27751); Parnes (M. C. Z. 27742); Chaumont (M. C. Z. 27747); Loins (M. C. Z. 27754, Dyer).

Horizon: Middle Eocene, Calcaire Grossier.

CLAVILITHES SCALARIS (Lamarck).

(Plate X, figs. 2, 3; Plates XIII, figs. 13, 15–20.)

1816. *Fusus scalaris* LAMARCK, Encyclop. Meth. Tab., 425, fig. 7.
1822. *Fusus scalaris* LAMARCK, Anim. sans vert., t. VII, p. 134.
1837. *Fusus scalaris* DESHAYES, Coq. Foss. Env. Paris, t. 2, p. 525, pl. 72, figs. 13, 14.
1866. *Fusus scalaris* DESHAYES, Anim. sans vert., t. III, p. 257.
1889. *Clavilithes longævus* COSSMANN, Cat. Coq. Foss., p. 172.
Not *Murex longævus* SOLANDER, Brander's Foss. Hants., p. 22, pl. II, fig. 40, and pl. VI, fig. 73. 1766.

This species is the terminal member of the series as far as developed within the Parisian province. It is a highly accelerated type, the ribbed *rugosus* stage being very short or dropped out altogether. The sutural shelf begins early while the spirals are still strong on the *subtuberculosus* whorl. Not infrequently the shelf appears in the ribbed whorls, forming a *rugoso-tuberculosus* stage. In some specimens the shelf appears as early as the third volution. A *tuberculosus* and a *parisiensis* stage normally follow the *subtuberculosus* stage, but one or both may be absent in highly accelerated varieties. The final stage of this species—the *scalaris* stage—is brought about by the deepening of the depression below the suture. The shelf as a consequence projects beyond the whorl as a rim. Coincidently the shoulder has become very wide and is bordered by the swollen edge of the rim. The posterior canal corresponding to this form of shelf has a T-shaped outline.

There are several distinct varieties of this species. In the most typical one (see Deshayes' figure) the shoulder appears after two or three whorls of the conch and the ribs are almost obsolete. The projecting rim may appear while the shell is still in the *tuberculosus* stage; *i. e.,* round smooth-shelved whorls without spirals. Or it may appear simultaneously with the appearance of the *parisiensis* stage; *i. e.,* when the smooth-shelved whorl becomes cylindrical. The *subtuberculosus* stage may be crowded out and the *tuberculosus* stage follow directly upon the *rugosus*. Again, both *subtuberculosus* and *tuberculosus* stages may be eliminated, and the *parisiensis* stage follow upon the *rugosus* stage.

Numerous other variations are possible, and their characteristics may be determined by permuting and combining the characters of the various stages and substages in every manner possible. In a large collection all or nearly all these possible variations may be found, since hardly any two individuals are exactly alike. Except in the most accelerated individuals a neanic *C. scalaris* and an ephebic *C. subscalaris* are structurally equivalent, and every *C. scalaris* has the characters of an adult *C. subscalaris* before it acquires those typical of its own species.

Specimen fig. 2 of plate X has two ribbed volutions followed by a *subtuberculosus* stage, with spirals and shoulder, of something less than a volution. With the assumption of the cylindrical form the shelf begins to project, so that the *parisiensis* stage is practically dropped out altogether.

In fig. 3 of the same plate is a differently accelerated individual. A *rugoso-tuberculosus* stage occurs, the last ribbed whorl having a narrow shelf. A short *subtuberculosus* stage follows, but the whorl quickly becomes cylindrical, and the shelf begins to project. The spirals are still retained and they occur in the last whorl where the shelf projects strongly. The whorl is still convex, owing to the strong constriction below the shelf. The shelf is turned slightly upward.

Fig. 13, pl. XIII, shows a young specimen with *rugosus, subtuberculosus* and *tuberculosus* stages. The shelf begins to project in the latter. Figs. 15 and 17 show young individuals in the *subtuberculosus* stage. Fig. 16 shows a specimen which in the early neanic stage resembles *C. subscalaris,* while figs. 18 and 19 show young specimens which likewise have just passed the stage in which they had the characters of *C. subscalaris.* In the majority of specimens the *subtuberculosus* or *tuberculosus* stages occur, followed frequently by a short *parisiensis* stage, before the shelf begins to project. In many specimens the shelf slopes outward instead of inward.

In the collection of the Philadelphia Academy of Sciences is a small specimen of this species in which the permanent projecting shelf begins almost in the first ribless volution. There are about two ribbed and spirally striate volutions (*rugosus* stage) followed by a short ribless and spirally striate volution in which there is a strong shelf (*subtuberculosus* stage). The characteristic projection of the shelf appears immediately after this, before the disappearance of the spirals. Thus the *tuberculosus* stage as well as the *parisiensis* stage is crowded out.

Localities: Chaumery (M. C. Z. 27760); La Chapelle (M. C. Z. 1083); Paris (M. C. Z. 1084, Bronn; 1085, 1086 Agassiz); Jancron (M. C. Z. 1087); Bazile (M. C. Z. 1888); Auvers (M. C. Z. 1089, 1090, 1091, 1092, Duval); Montmiraille (M. C. Z. 27786); Le Guepelle (Acad. Sci. 6893, Cossmann).

Horizon: Upper Eocene: Sables Moyens, lower and middle beds, but not the upper (Desh.). At Coumant specimens were found ranging from 18 to 20 and 22 centim. in length, and 65 mm. in width (Desh. 1866).

CLAVILITHES MACROSPIRA Cossmann.

1889. *Clavilithes macrospira* COSSMANN, Ann. Soc. Roy. Mal. de Belgique, t. 24, p. 173, pl. 6, fig. 7.

This is an accelerated species in which the shelf appears early, but the whorls never become cylindrical; they rather assume a conical shape.

In this respect, as well as appearance generally, it recalls the typical British species *C. solanderi*, but since *C. macrospira* was described from imperfect material its identity with the British species is not proved. Should more perfect material show this identity, Cossmann's specific name will of course supersede mine.

Cossmann states that the young whorls are ornamented by ribs and spirals, but that these have disappeared on the fifth whorl before the last, the final ones being smooth.

Two specimens from the Paris Basin (M. C. Z. 27761), though worn, show the characters of this species. The earliest whorls are broken away and the characters of the youngest stages is, therefore, not determinable. The final portions of the last whorl have a *scalaris*-like projection of the shelf.

This species may have been derived from *C. subscalaris* by flattening of the upper portion of the whorls.

Localities: Paris Basin (M. C. Z. 27761).

Horizon: Upper Eocene (Cossmann).

CLAVILITHES MAXIMUS (Deshayes).

1824. *Fusus maximus* Deshayes, Coq. Env. Paris, p. 526, pl. 71, figs. 11–12.

1850. *Fusus maximus* Deshayes, Rouault, Foss. Eoc. Env. Pau, T. III, pt. 2, p. 489, pl. 17, fig. 8.

1889. *Clavilithes maximus* (Deshayes) Cossmann, Cat. Coq. Eoc. Paris, T. 4, p. 177.

This very large and robust species from the middle Eocene of Chaumont, etc., is of somewhat uncertain affinities.

According to Rouault, Deshayes' figure does not agree with the description given by that author, the illustrated specimen being doubtless a very old and worn individual. The shell figured by Rouault is stated to have in the neighborhood of fourteen whorls, the last of which have a strong shelf. Only six whorls are shown, the top being broken away, and there probably were not above three or four more. The ribs are broad, separated by less than their width, and they persist into the penultimate whorl as faint wrinkles or undulations. Intercalated spirals are shown on the earliest preserved whorls. The shelf begins on the last of the ribbed whorls, is well developed and horizontal. On the preceding whorls it is replaced by a subsutural band. The whorls become cylindrical after the appearance of the shelf, and the spirals persist, though faintly, onto the otherwise smooth body-whorl. They are strong on the spindle. The total length of the shell figured by Rouault must have been between five and six inches. The shell resembles the British *C. solanderi*, but the ribbed whorls continue longer, the sides are parallel to the axis instead of converging; the shelf is horizontal instead of sloping inward, and the spirals are persistent, especially on the spindle.

Localities: Chaumont, Bos d'Arros.
Horizon: Middle Eocene, Calcaire grossier.

CLAVILITHES DEFORMIS (Solander).

In the British Eocene.

(Plate XIII, fig. 14; Plate XIV, figs. 1, 3 and 4; Plate XVIII, figs. 7 and 8.)

1766. *Murex deformis* SOLANDER, Brander's Foss. Hants., p. 22, pl. II, figs. 37, 38.

The species was described by Solander from immature specimens obtained from the Eocene of the Hampshire basin. As has already been remarked the name is best discarded, since the precise relations of the species of which these specimens are the young must always remain doubtful. They probably belong to *C. solanderi* Grabau, and according to strict ruling Solander's name should have priority. There is, however, the above-mentioned element of doubt, which makes such ruling in this case a questionable expedient.

In plate XIII, fig. 14, is illustrated a characteristic example of the young *Clavilithes* comparable to *C. deformis* (Solander) as it occurs in the Eocene clays of Barton.

The protoconch (pl. XVIII, figs. 7 and 8) is much larger and more robust than is even the case in the French species of the genus. Its median whorl has a diameter of nearly 4.5 mm., while the average diameter of the median whorls in the French species is less than 3 mm., seldom exceeding 2.5 mm. In one specimen from Barton the diameter of the median whorl of the protoconch was found to be 5 mm. There are, however, specimens in which the protoconch approaches in size more nearly that of the French species. The number of volutions varies from three to nearly four, and they almost always show an irregularity in thickness. A characteristic feature not found in the French species is the flattening of the upper exposed portion of the early whorls of the protoconch, thus giving a sloping or trochiform character to the apex (pl. XVIII, figs. 7 and 8). The apex of the protoconch of the Parisian species is naticoid with the convexity of the whorl unimpaired.

In the conch the spirals appear before the ribs. The latter are at first mere undulations which, however, quickly become pronounced in most cases. In some accelerated types the ribs never appear, the early whorls being merely spirally striate. The contour of the early whorls is strongly convex. Intercalation of spirals does not appear until after the second volution of the conch.

There is great similarity in general appearance between the British young shells described as *C. deformis* and the young of *C. subscalaris* and *C. scalaris* from the Paris Basin beds.

Localities: Common in the Barton Beds of the Hampshire Basin (M. C. Z. 27783) Bracklesham (M. C. Z. 27765).

Horizon: Upper Eocene.

CLAVILITHES PARISIENSIS (Mayer-Eymar).

In the British Eocene.

(Plate XIV, figs. 7 and 9.)

So far as I am able to judge from the limited amount of material in my hands, this species, while represented in the British Eocene, did not attain its normal development as found in the specimens from the Paris Basin. It is perfectly possible, as far as my observations go, to distinguish the Hampshire basin specimens from those of the Paris Basin, even though we overlook the difference in color. This is probably to be correlated with difference in facies between the two regions, which must have caused an effective separation of the two faunal provinces even though no other barrier existed.

In fig. 4, pl. XIV, is shown an immature specimen which may belong to this species. The protoconch is not widely different from that of the Parisian specimens, though the apex is less depressed than in those from the Calcaire Grossier. There are something over four volutions, after which the spiralled and ribbed conch begins. The *rugosus* stage is short, followed by a pronounced *dameriacensis* stage. Before the disappearance of the spirals a thickening of the suture occurs which marks the beginning of the sutural shalf. The contour of the whorl changes but slightly, still it becomes progressively less convex. In this and in specimen fig. 3 of the same plate in which the *rugosus* stage is more pronounced, is a suggestion of the *tuberculosus* characteristics, from the appearance of a shelf while the whorl is still of a convex contour. This is particularly the case in fig. 3, where the strong *rugosus* characters give the nodulose appearance so characteristic of *C. tuberculosus* (Desh.). The same features are shown in specimen fig. 1 of the same plate. Here the *rugosus* characters persist still longer, but the spirals on the ribless whorls are less pronounced. An imperfect shelf with a subsutural concavity and rounded contour of whorls strongly suggests the accelerated type *C. tuberculosus* of the Paris Basin. It would be hazardous, however, to consider the present immature shells of this species, particularly since the shelf is scarcely more than a thickening of the edge of the whorl, such as may occur in abnormal specimens of *C. conjunctus* or *C. dameriacensis*. A distinct shelf does appear in the young of some specimens of *C. solanderi* and *C. longævus*, while the contour is still convex.

A specimen from the Barton beds, Hampshire, has the protoconch and early whorls of the conch broken away (pl. XIV, fig. 7). About two ribbed volutions occur followed by one which has the characters of *C. dameriacensis*, being rounded and spirally striate. This is followed by a whorl in the *conjunctus* stage and one in which a cylindrical form and a sutural shelf occur, the latter, however, not being flat, but sloping outward. Gerontic characteristics are shown by a thickening of the lip through a piling up of layers, and by the formation of a deep posterior canal, as well as a slight sutural canal.

Another adult specimen from the Bracklesham beds of New Forest, Hampshire (pl. XIV, fig. 9), shows a septum near the end of the protoconch, and an acceleration in the nepionic stage, in which the non-undulate spirally striate character, usually seen only in the last stages preceding the *conjunctus* stage, makes its appearance. A few faint undulations are, however, still visible in the early nepionic stage. There are about three volutions, which have the form and spirals of the *dameriacensis* stage, the spirals being uniform, except just below the suture, where they are closely crowded. Intercalated spirals appear toward the end of these volutions.

The *conjunctus* stage is seen in the next whorl, which is, however, soon modified by having the whorl flattened laterally and so becoming cylindrical in form. This continues for a time, with an outward sloping shoulder, giving an appearance very unlike that of the French species. A strong senile feature is shown in the crowding together of the last added lamellæ, making a rough terminal portion of the last whorl, an irregular sutural shelf, and a pronounced posterior canal.

This specimen represents a case of extreme acceleration, the *rugosus* stage being practically dropped out, so that the earliest whorls of the conch are in the *dameriacensis* stage.

Horizon: Bracklesham (Middle) and Barton (Upper) beds of the British Eocene.

Localities: New Forest (M. C. Z. 27767) and Barton (M. C. Z. 27768) ; Hampshire.

CLAVILITHES CONJUNCTOIDES sp. nov.

(Plate VIII, fig. 19.)

General characters like *C. conjunctus*, but the preëphebic whorls strongly and coarsely ribbed and marked by spirals, and very unlike the regular ribs and spirals found in the Parisian species. The ribs are rather irregular and bulging in the center. The whorls embrace less than is the case with British species of this genus generally. The ribbed whorls are rather abruptly succeeded by smooth ones, which are at first rounded, but later have their sides flattened and sloping outward after the manner of *C. solanderi* and *C. egregius*. A faint shelf appears usually while the whorls are still round, thus showing an advance upon the French species. This shell is readily distinguished from the other British species by its strongly and coarsely ribbed spire. This distinguishes it also from the French species, from which it also differs in the loose spire with rather deeply impressed suture and the sloping sides of the body-whorl. It resembles most nearly some of the American species.

Locality: Brockenhurst, Hants Co., England (M. G. Z. 27794).
Horizon: Lower Oligocene Brockenhurst beds.

CLAVILITHES EGREGIUS (Beyrich).

(Plate XIV, fig. 2.)

1865. *Fusus longævus* var. *egregius* (BEYRICH) VON KOENEN, Zeitsch. der Deutsch. Geolog. Gesellsch., Bd. 17, seite 479.
1889. *Fusus* (*Clavella*) *egregius* VON KOENEN, Norddeutsches Unteroligocän, pt. I, p. 206.
(See further *C. egregius* BEYRICH below.)

The species of ribless *Clavilithes* found in the Brockenhurst beds was identified by von Koenen with Beyrich's *Fusus egregius.* While differing in some minor respects from the North German species, the two may, nevertheless, be considered specificially identical.

The protoconch is papillose and consists of several whorls. The succeeding whorls of the conch are at first globular, with well developed spirals, after which they become flattened in their upper portion, which instead of being parallel to the axis of the shell slopes outward at a strong angle. The lower part of the whorl is rounded, but that portion is covered by the succeeding whorl. The last whorl is smooth, the sides nearly parallel to the axis, and the suture with a very narrow shelf. The lip of the figured specimen flares out suddenly.

Locality: Brockenhurst, Hants Co., England (M. C. Z. 27793).
Horizon: Lower Oligocene (von Koenen), Brockenhurst beds.

CLAVILITHES SOLANDERI sp. nov.

(Plate XIV, figs. 5 and 6; Plate XV, figs. 1 and 2.)

1766. *Murex longævus* SOLANDER, Brander Foss. Hants., pl. VIII, fig. 93. Not *M. longævus* SOLANDER, ibid., pl. II, fig. 40, and pl. VI, fig. 73.
1812. *Fusus longævus* SOWERBY, Min. Conch., vol. 1, p. 141, tab. 63, fig. 1.
1845. *Fusus longævus* DESOR, Sowerby's Mineral. Conch., p. 99, pl. 46, fig. 1.

This species is distinct from all the French species which have been examined, though it is genetically related to them. It is larger, coarser and more robust than any of the Paris Basin species. So far as known it is confined to the British Eocene.

The protoconch is stout, its terminal whorls flattened so as to produce a trochus-shaped apex. It is papillose and consists of less than three volutions. No ribs have been observed. (See further description under *C. deformis.*)

The conch begins with a whorl somewhat larger than those of the protoconch and marked only by sharp and rather distant spirals. After this the whorls are thrown into transverse undulations, which in none of the specimens seen assume a true rib character. This continues for about a volution and a half, the whorls being rounded, and then, by a fairly sudden transition, the whorls become subconical, smooth and with a sutural shelf. In one specimen (pl. XIV, fig. 6, M. C. Z. 1058) the spirals continue after the wrinkles cease, the whorl apparently still remaining subglobular. In the succeeding whorls the depression seen below the suture of *C. conjunctus* is shown.

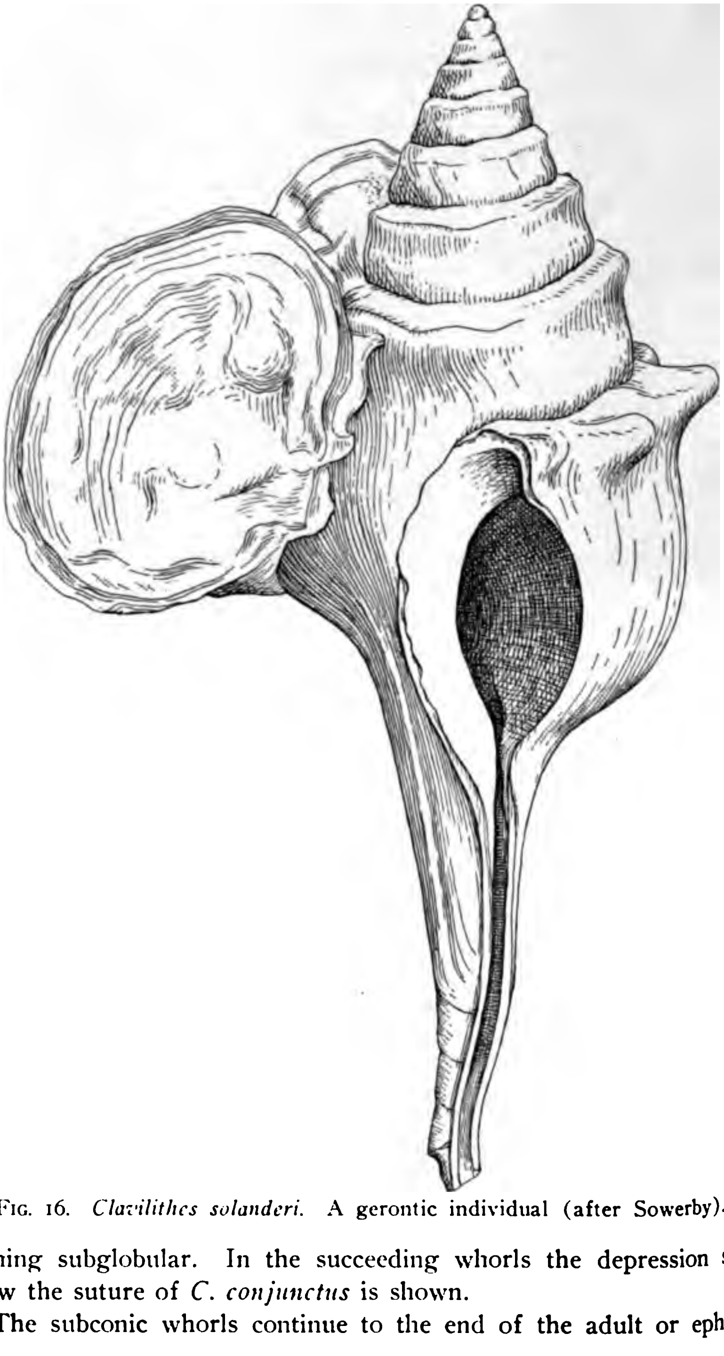


FIG. 16. *Clavilithes solanderi.* A gerontic individual (after Sowerby).

The subconic whorls continue to the end of the adult or ephebic tage, as many as five volutions of this type having been noticed. They imply increase in size and in the width of the sutural shelf, but otherwise they do not change. The shelf is abruptly marked off from the whorl by a slightly acute angle, the shelf sloping inward.

The whorls are not absolutely smooth, spiral lines appearing faintly n the depression below the suture, as in *C. conjunctus*. In old-age ndividuals, this depression becomes stronger, and a projection of the utural shelf is produced as in *C. longævus* Sol. The shelf in this tage also becomes somewhat more depressed, forming a modest utural canal.

The increase in depth of the shallow depression below the shelf esults in producing an outward bulge in the outer lip of the last whorl. This gives a curvature to the lip, which in younger shells is perfectly traight above.

A gerontic individual of this species is figured by Sowerby on plate 63 of his Mineral Conchology. This has about six volutions with a shelf, a little over five of which are of the normal type. The last, however, shows old age characteristics in the development of a spinous projecting rim of the shelf. This character is normal to the adult of he next species. The spinous prolongations are not true spines but simply irregular extensions of the shelf with a depression below the expansion. From the strong development of this depression the outline of the whorl has again become rounded. The accompanying illustraion (fig. 16) is a copy of Sowerby's figure.

The distinctive characters of this species are produced by the appearance of the subconic shelved whorls immediately after the unlulating spirally striate whorls which represent the *rugosus* stage. The species is in other words an excessively accelerated one, in which all he smooth round-whorled stages are dropped out. In the subconic form of the whorls this species is similar to *C. macrospira* Cossmann of the Parisian Eocene, and it is not impossible that the two may prove dentical. The Parisian species is never so large and robust, and may represent a migrant from the British province into the Parisian one. From the difference of physical condition it did not thrive well in the Paris area, just as the migrant *C. parisiensis* from the Paris province did not thrive well in the British province, as indicated by the abnormal development.

Localities: Hampshire (M. C. Z. 1058, 1059); Barton cliff, Duval (M. C. Z. 1061 and 1060); same, Keeping (27762).

Horizon: Barton Beds. Upper Eocene.

CLAVILITHES LONGÆVUS (Solander).

(Plate XIV, fig. 8; Plate XV, fig. 3.)

1766. *Murex longævus* SOLANDER, Brander's Foss. Hant., figs. 40 and 73, not fig. 93.

This is the terminal species of this series, paralleling *C. scalaris* in the Paris Basin *Clavilithes*. These two species are generally considered identical, but their independent origin is established on inspection of the early stages of each.

There has been much confusion as to the true *Murex longævus* of Solander. For a long time the name *Fusus longævus* was applied to the type of the genus *Clavilithes*, which has been identified by Cossmann with Solander's *Murex deformis*. This identification I consider questionable, and I prefer to use Mayer's name *C. parisiensis*. Sowerby described and figured the fine example of *C. solanderi* here reproduced as typical *Fusus langævus*. Finally Mons. Cossmann identified Lamarck's *Fusus scalaris* from the Paris Basin with the typical British *C. longævus* (Sol.), calling all by that name. In this he is followed by all recent authors. The differences between these two species have been pointed out and their independent origin noted. Solander's description with omission of unimportant parts is here given, his illustrations are replaced by the more satisfactory photographs of characteristic specimens.

" . . . testa patulo-caudata lævi, anfractibus superne coarctatis supra planis, (adultioribus) margine obtuse spinosis."

"Testa crassiuscula, lævis, glabra, anfractus supremi transversim striati, omnes supra canali plano distincti, cujus margines in adultioribus obtuse, spinosi uti videre leceat in fig. 40 et 73."

"Cauda angustata, longitudine ipsius testæ."

"Apertura ovata."

The protoconch of this species is like that of *C. solanderi.*

The conch begins with two rounded, irregular and spirally striate whorls, the second of which has a few vertical undulations. This is the abbreviated *rugosus* stage. The *macrospira* stage* which follows immediately upon the *rugosus* as in *C. solanderi,* and which in that species characterized most of the whorls of the shell, is in this species very short with a few striations and a shelf, which soon becomes overhanging and spinose. The length of duration of this stage varies in different specimens, there being sometimes three or four volutions in which a shelf exists without a projecting rim. The beautiful regularity of the whorls of this stage, so characteristic of *C. solanderi,* does not appear in this species, the whorls being very irregular. The shelf is also more irregular, the surface not presenting that regular, gradually widening path-like spiral which is the most pronounced feature of *C. solanderi.*

---

* Whorls like *C. macrospira,* conical, with sides straight and sloping upwards, and with an abruptly delimited shelf.

The spines, which generally appear quite early, become imbricating and coarse in the later whorls. The body whorl is semi-globular, as in the gerontic specimen of *C. solanderi,* and the spindle and canal long. A fold occurs just below the posterior canal, but becomes covered by the thickening of the canal.

Localities: Hampshire, Barton cliff (M. C. Z. 1062, 1063, Lyell, 27763, Keeping).

Horizon: Barton Beds, Upper Eocene.

This and the preceding species were also referred by some of the labels to the London Clay (Lower Eocene). This is probably erroneous.

No specimen of *C. parisiensis* has as yet been seen, which shows anything but the loss of characteristics in its gerontic stage. By the loss of the shelf the species assumes again the characters peculiar to the more primitive *C. conjunctus.* In the gerontic stage of *C. solanderi* we have, on the other hand, a distinct addition, a new character, spines, being developed in the old age of the individual. The succeeding species, *C. longævus,* has this newly acquired character developed to the exclusion of almost all the other characteristics. The character is a newly acquired one in the old age of the earlier individuals, and it has not only become inherited in the succeeding species, but, in obedience to the law of acceleration, has been pushed back into the youthful stages of the shell.

No specimen of *C. subscalaris* with the *scalaris* features in the gerontic stage have as yet been seen. From analogy with *C. solanderi,* and from theoretical considerations, we should expect to find *scalaris* features appearing in extreme old individuals of *C. subscalaris.*

There is a remarkable parallelism between the young of typical species of *Clavilithes,* like those of the Paris Basin, and that of *Turbinella chipolana* Dall from the Tertiary of Chipola River, Calhoun County, Florida. Other species of *Turbinella* whose young are very similar to *Clavilithes* are *T. regina* Heilprin and *T. scolymoides* Dall, both from the later Tertiaries of Florida. Externally scarcely any difference can be seen between the young *Turbinellas* and the young *Clavilithes.* The protoconch of the former is perhaps somewhat larger, but that is not always the case. Often it shows a slight angularity, which recalls the protoconch of *"Fusus" probocidiferus.* The character of the ribs and spirals on the young conch are also closely similar to those of young *Clavilithes.* The three strong columellar plications, which are seen even in the young of *Turbinella,* and the elongated character of the lip, which recalls *Rhopalithes noæ,* are, however, pronounced differences. In the youngest shells of *Turbinella* seen the upper of the three plications is very weak.

These species of *Turbinella* run in a general way through the same series of variations as do those of *Clavilithes,* but no shoulder has been observed.

CLAVILITHES IN THE NORTH GERMAN OLIGOCENE.

CLAVILITHES EGREGIUS (Beyrich).

(Plate XIII, fig. 12.)

1856. *Fusus egregius* BEYRICH, Zeitsch. Deutsch. Geol. Gesell., Bd. VIII, p. 78, pl. 22, figs. 1-5.

1889. *Fusus* (*Clavella*) *egregius* v. KOENEN, Norddeutsches Unter-Oligocän, Lief. 1, p. 206, pl. 20, fig. 11.

A single specimen of this species has been seen in which the protoconch and early whorls of the conch have been broken away. None of the remaining whorls are ribbed, and apparently none of the earlier whorls were. The first four whorls are spirally striate, the first two globular with simple spirals, the next two with intercalated spirals and the form turbinate, *i. e.,* the greater portion below the suture being flat, not convex. The lower part is abruptly deflected inward. The last whorl is smooth. Beyrich figures several large and fine specimens of this species, which rival in size the Parisian forms, without, however, equalling the British. The last whorls remain smooth and of a somewhat rounded contour, the turbinate aspect of the young being lost. This and the absence of the shelf show that this species has not passed beyond the *conjunctus* stage. The *rugosus* stage is dropped altogether, the species beginning with the *dameriacensis* stage. The protoconch is papillose but the terminal portion seems to be somewhat coarser than that of the normal Parisian forms.

The turbinate aspect of the young is caused by the fact that the later whorls embrace the earlier ones up to the middle.

Localities: Wolmirsleben (M. C. Z. 1114); Westeregeln, Atzendorf and Welsleben, North Germany (Beyrich); Lattorf, Calbe, Atzendorf, Unseburg, Welsleben, Westeregeln, Osterweddingen, Helmstädt; Lethen; North Germany. Also Brockenhurst Hants. England (von Koenen).

AMERICAN SPECIES OF CLAVILITHES.

The American (Gulf Coast) species which are generally referred to the genus *Clavilithes* offer a surprising parallel to those of the Paris Basin. There are, however, distinct features which persist throughout the entire series and which might perhaps be considered as sufficient to demand separation of this series under a distinct generic name. The chief of these features are the loose coiling, the broad ribs of the pre-ephebic stages, and the character of the protoconch. The latter is very irregular and when perfect presents a slight upward projecting apex, very different from that of the Paris Basin species which has a termination consisting of a minute naticoid whorl with rounded apical end. The apical whorls of the American species are furthermore laterally compressed as is the case with the species of the British series, thus producing a trochus-shaped apex.

For the present I will leave these species under the generic designation of *Clavilithes,* but with the understanding that they form a distinct series, which may have originated independently.

CLAVILITHES PACHYLEURUS (Conrad).

1842. *Fusus pachyleurus* Conrad, Journ. Phil. Acad. Nat. Sci., vol. 8, p. 190.
1848. *Fusus pachyleurus* Conrad, ibid., 2d ser., vol. I, pl. 14, fig. 25.
1865. *Clavella pachyleurus* Conrad, Am. Journ. Conch., vol. I, p. 18.
1890. *Fusus* (*Clavella*) *conjunctus* var. *pachyleurus* Gregorio, Ann. de Geol. et de Pal., Liv. 7, p. 89.
1893. *Clavilithes pachyleurus* Cossmann, ibid., Liv. 12, p. 36.

This species is the American equivalent of the Parisian *C. conjunctus.* The early whorls are rather bulging with closely set ribs, the spaces between which are concave and scarcely equal in width to the ribs. The whole aspect of the shell is stouter and more compact than that of *C. humerosus* (pl. VIII, figs. 17, 18), and not unlike that of *C. conjunctus.* The depressions between the ribs are often mere lines. Each whorl embraces about one third of the preceding one, and the ribs are continuous from suture to suture. The shelf is practically undeveloped.

Localities: Clayborne, Alabama (Acad. Sci. 6912; Nat. Mus. 90921).

Horizon: Eocene (Claiborne beds).

CLAVILITHES HUMEROSUS (Conrad).

(Plate VIII, figs. 17, 18.)

1856. *Clavella humerosus* Conrad, Proc. Acad. Nat. Sci., vol. 7, p. 259.

This species in its adult character is a close parallel to *Clavilithes parisiensis* of the Paris Basin. It differs from that species in the characters which distinguish the American species generally from those of the Paris Basin. The protoconch is very irregular with more or less oblique whorls, a trochoid apical portion, and a projecting apical point. The last whorls have a few faint and distant riblets, and extremely fine revolving lines. There is no abrupt termination.

The conch in its early whorls has rounded distant ribs swollen in the middle, and with numerous revolving spirals, which are simple for the first three volutions and then become increased by intercalation. A slight subsutural band indicates a posterior canal. About four and one half volutions are ribbed, and the sutures are deeply impressed. The ribs become mere undulations towards the end of the stage, after which one or more whorls of the *conjunctus* type with rounded shelfless contour and smooth surface succeed. A few spirals may be retained on the early portions of these whorls, thus forming a *dameriacensis* stage. The shelf makes its appearance gradually and the contour of the whorl becomes cylindrical. This outline is fully assumed only when the shelf is completely developed. The shelf generally slopes inward more as in *C. solanderi* of the British series.

Localities: Jackson, Miss. (Acad. Sci. 6884, Conrad's types) (M. C. Z. 27792) (Nat. Mus. 14707); Mount Lebanon, La. (Acad. Sci. 6887, Nat. Mus. 147318, 147316); Montgomery, La. (Acad. Sci. 6886); St. Maurice, La. var. (Acad. Sci. 6885).

Horizon: Jackson stage, Eocene (var. Claiborne stage).

Note: The last-mentioned variety has less impressed sutures between the whorls, and the shelf appears early, the *conjunctus* stage being much condensed or almost eliminated. The convexity of the whorls is suppressed, so that the sides appear almost straight, though converging upwards. The shelf is narrow and regular. The ribs of the neanic stage are narrower, more uniform and less bulging. The protoconch is of the usual type. The other Louisiana specimens form connecting links, and together these forms lead to the Texan variety next described.

CLAVILITHES TEXANUS Harris.

1896. *Clavilithes humerosus* var. *texanus* HARRIS, Proc. Phil. Acad. Nat. Sci., 1895, p. 73, pl. 7, fig. 7.

This species is a parallel to the Parisian *C. subscalaris, i. e.,* it is in the same state of development. As in the other species of this series, the first whorl of the protoconch is abruptly compressed and somewhat elevated so as to produce a strong projecting point. The other whorls are round.

The neanic whorls of the conch are similar to those of the variety from St. Maurice, La. In the later whorls the spirals become subdued. The shelf appears early and a slight depression forms below it, recalling the deep concavity characteristic of *C. chamberlaini* Johnson and Grabau.

Locality: Alabama Bluff, Trinity River, Houston Co., Texas (Acad. Sci. 6889); Claiborne, Alabama (Nat. Mus. 2916).

Horizon: Eocene (Claibornian).

CLAVILITHES RAPHANOIDES (Conrad).

1834. *Fusus raphanoides* CONRAD, Journ. Acad. Nat. Sci., vol. 7, p. 144.

1835. *Fusus raphanoides* CONRAD, Foss. Shells Tert. Form. N. Am., p. 54, pl. 18, fig. 8.

1890. *Fusus (Clavella) raphanoides* GREGORIO, Ann. de Geol. et de Pal., Liv. 7, p. 89.

1893. *Clavilithes raphanoides* COSSMANN, ibid., Liv. 12, p. 36.

"Fusiform, entire; whorls slightly contracted above; suture profound; margined by an obsolete raised line; body whorl abruptly rounded inferiorly; aperture suddenly contracted above and beneath" (Conrad).

This species recalls *C. egregius* from the North German Oligocene in its final whorls. Spirals seem to be absent altogether from this species.

Locality: Claiborne, Alabama (Conrad) (Nat. Mus. 2973).
Horizon: Eocene, Claibornian.

CLAVILITHES VICKSBURGENSIS (Conrad).

1849. *Clavella vicksburgensis* CONRAD, Journ. Phil. Acad. Nat. Sci., ser. 2, vol. I, p. 207.
1850. *Clavella vicksburgensis* CONRAD, ibid., vol. II, pl. I, fig. 5.

"Fusiform, smooth, moderately thick; spire conical, with obtuse longitudinal remote varices, first and second volution entire; suture impressed; body whorl regularly rounded towards the beak; aperture and canal about one tenth longer than the shell; beak straight and pointed 2¼ : ¾."

"*Locality:* Vicksburg, Mississippi, abundant."

A few faint undulations appear near the top, but otherwise the shell is smooth and recalls *C. egregius*.

Horizon: Vicksburg stage, Lower Oligocene.

CLAVILITHES KENNEDYANUS Harris.

1895. *Clavilithes kennedyanus* HARRIS, Proc. Acad. Nat. Sci. Phil., p. 73, pl. 7, fig. 8.
1899. *Clavilithes kennedyanus* HARRIS, Bull. Am. Pal., vol. III, p. 44, pl. 5, fig. 8 (variety). (See fig. 17.)

This is a slender species with the spire tapering to a very acute point. It has somewhat the aspect of a *Clavellofusus*. No fully preserved protoconch has been observed. It consists apparently of three or more rounded whorls, loosely set one upon the other. The ribs of the conch are at first of uniform strength throughout, but later they become stronger in the middle and obsolete towards the sutures. They are at first separated by a space much more than their width apart, then grow broader, with narrowing interspaces. A slight revolving concavity occurs just below the suture. The ribs disappear on about the sixth whorl of the conch, after which the whorls are convex and smooth, the spirals being scarcely visible. The last of the smooth whorls embrace the preceding ones up to the suddenly constricted base of that volution, thus giving the spire a uniform tapering aspect.

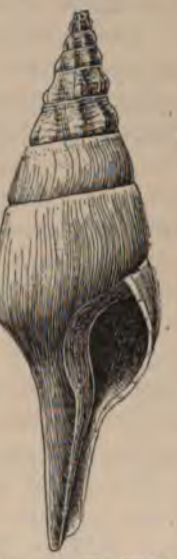


FIG. 17. *Clavilithes kennedyanus.* (After Harris.)

Localities: Woods Bluff, Ala. (Acad. Sci. 6914); near Thomasville and Choctaw Corner, Alabama (Nat. Mus. 8885); Nanafalia, Ala., and Smithville, Bastrop Co., Texas (Harris).

Horizon: Eocene, Lignitic and Lower Claiborne stages.

CLAVILITHES CHAMBERLAINI Johnson and Grabau.

1901. *Clavilithes chamberlaini* JOHNSON AND GRABAU, Proc. Acad. Nat. Sci. Phil., Nov., 1901, p. 602, figures in text.

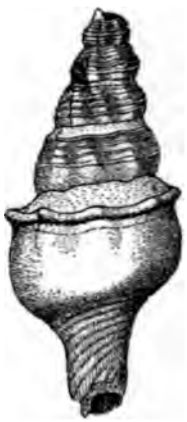


FIG. 18. *Clavilithes chamberlaini* type. (After Johnson and Grabau.)

This species is the structural equivalent of the Parisian *C. scalaris* and the British *C. longævus*.

The spire of this species is long and slender, as in *C. kennedyanus* Harris, with which the early whorls of the shell agree pretty well. Only a portion of the protoconch has been observed, but it is apparently of the same character as that of the American species of this genus generally, unless more slender than the normal. The spire contains about seven ribbed whorls; the suture is moderately depressed; the ribs are swollen near the middle, but become obsolete toward the suture; they are at first more than their width apart, but later become broader and the interspaces correspondingly narrower. A subsutural band occurs, and is quite strongly marked on the later ribbed whorls, indicating a pronounced posterior canal at this stage.

Spirals on the first five whorls, single, coarser in the center, but becoming finer toward the sutures; interspiral spaces broader than the spirals. Intercalation of secondary spirals begins on the sixth whorl. On the seventh whorl the ribs become broad and ill defined, tending toward obsolescence. Before they have quite disappeared, a sutural shelf sloping somewhat outward and bordered by a slightly outward projecting margin appears; this very soon develops into a serrated flange. At the same time the whorls become almost smooth, the spirals usually only occurring on the narrowed anterior portion or canal of the body whorl. Length of the adult specimen figured 39 mm., diameter 18 mm.

Compared with *C. humerosus* var. *texanus* Harris it has more ribs on the spire, and these are more regular and bulging, stronger spirals, and the well-marked serrated flange. It also differs somewhat in outline, the last whorl being broader than the corresponding whorl of *texanus*. It differs from its European parallels in many characters, chief of which are the protoconch, the long ribbed spire, the character of the sutural shelf and flange, and other points readily seen on comparison.

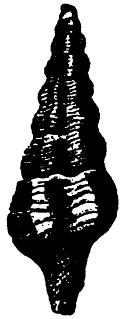


FIG. 19. *Clavilithes* sp. An immature individual in the rugosus stage. It probably belongs to a species which never passes far beyond this stage, and this is ancestral to both *kennedyanus* and *chamberlaini*.

Locality: Bald mound, nine miles southeast of Jewett, Leon Co., Texas (Acad. Sci. 9409).

Horizon: Eocene, Lower Claibornian.

CLAVILITHES (?) SALEBROSUS (Conrad).

1834. *Fusus salebrosus* Conrad, Journ. Acad. Nat. Sci., vol. 7, p. 145.
1835. *Fusus salebrosus* Conrad, Foss. Shells Tert. Form. N. Am., p. 55, pl. 18, fig. 13.
1835. *Fusus protextus* Conrad, ibid., p. 54, pl. 18, fig. 7.
1866. *Fusispira protexta* and *salebrosa* Conrad, Check list, p. 19.
1890. *Fusus (Fusispira) protextus* and *salebrosus* Gregorio, Ann. de Geol. et Pal., Liv. 7, p. 90.
1893. *Clavilithes protextus* Cossmann, ibid., Liv. 12, p. 36.

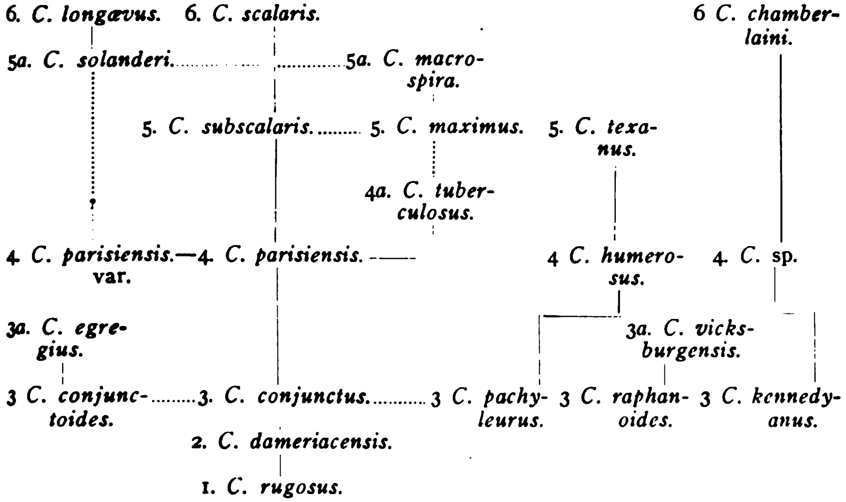
Conrad's *F. protextus* is the adult of his *F. salebrosus*. The ribs of the early whorls are chiefly restricted to the peripheral portion, the shoulder being flat or slightly concave and ribless. Spirals persist throughout. The last whorl or more is entirely ribless but with a pronounced concavity on the shoulder. There is no sutural shelf.

It is not unlikely that this species belongs to another series (*Fusispira* Conrad).

Locality: Claiborne, Alabama (Conrad).

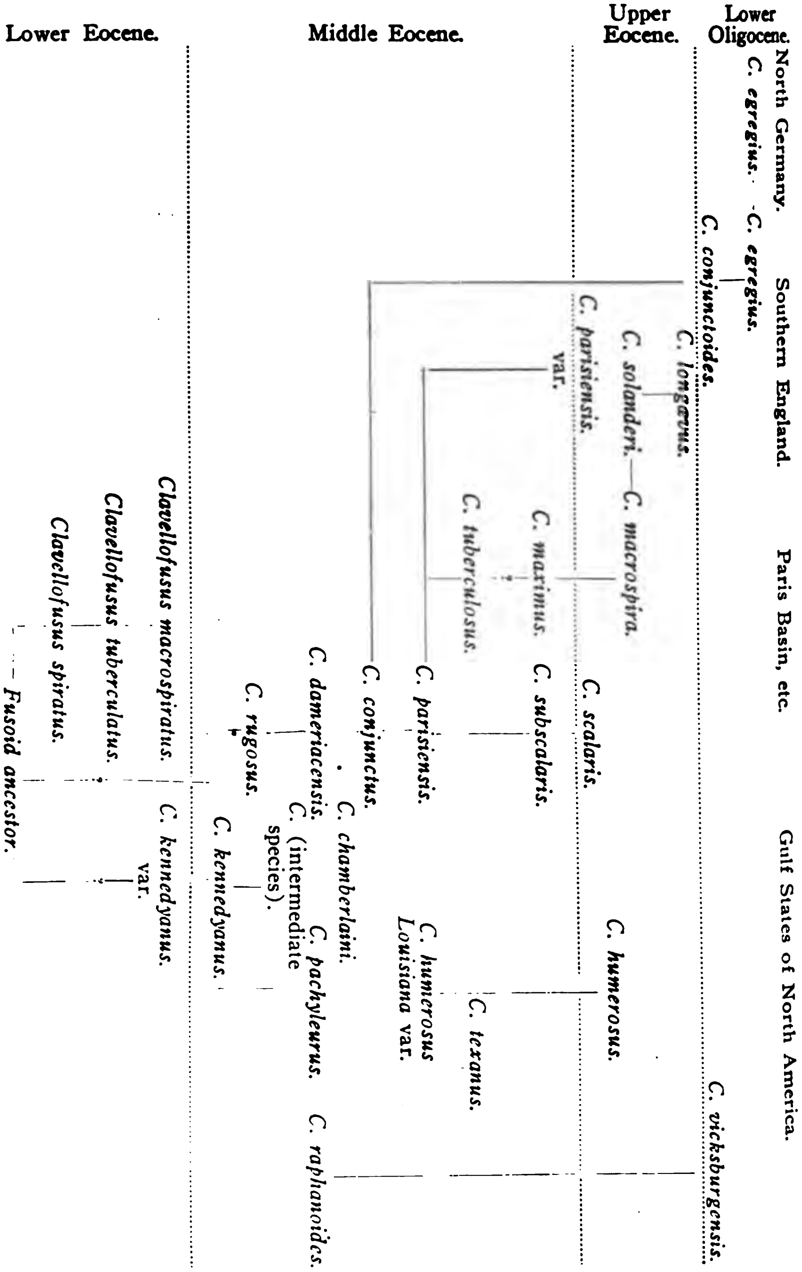
Horizon: Eocene, Claibornian.

The following table shows the biologic equivalency of the various species here described under the generic designation of *Clavilithes*. The structural equivalents, *i. e.*, those in the same stage of development are placed upon the same line:



The dotted lines indicate doubtful relationship.

The following table shows these species in their geologic and biologic relations with the probable origins and migrations indicated. The species of *Clavellofusus* are also shown.



RHOPALITHES * gen. nov.

(ῥόπαλον, a club; λιθος, stone.)

Shell fusiform with a fusoid protoconch, consisting of a smooth erect portion, of about a whorl or over, and a vertically ribbed portion, with the fine smooth ribs widely separated. The conch consists of ribbed and spirally striate whorls, which are rather closely coiled, followed in the more accelerated species by smooth whorls, which generally develop the Clavilithoid shelf. The columella is furnished with two or more oblique plications.

Distribution: Eocene of Paris Basin; Adour basin; Northern Italy, etc.

Genotype: Fusus noæ Lamarck.

RHOPALITHES RUGOIDES sp. nov.

(Plate IX, figs. 9–12.) (Type Plate IX, fig. 10 and text fig. 20.)

1837. *Fusus rugosus* var. Deshayes, Coq. Foss. Env. Paris, pl. 75, figs. 10, 11.

The protoconch of this species is fusoid, obliquely erect and consists of a volution and a half. The greater portion is smooth, but toward the end it is marked by a few fairly strong smooth ribs which are several times their width apart. There are no spirals between the ribs. The protoconch ends in a marked varix, and there is a pronounced change in convexity and ornamentation.

The conch begins with strongly ribbed and spirally striate whorls, on which the ribs are widely separated. The whorls embrace about one third or a little more, thus producing a very depressed spire. A considerable flattening of the shoulder and a strong peripheral angulation results. The ribs increase in strength toward the periphery where two of the spirals are strong. These are soon reënforced by a third, and all three produce blunt cusps at the intersections with the ribs. In the adult or ephebic stage the whorls become again more rounded though the shoulder is still flattened, the ribs are round and obtuse, and a faint subsutural band exists, indicating a posterior canal. Two well-marked plications occur on the columella.

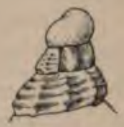


Fig. 20. *Rhopalithes rugoides*, showing protoconch. (× 10, M. C. Z. 27,777.) (See pl. IX, fig. 10.)

This species is the parallel of *Clavilithes rugosus,* with which it is commonly united. While generically distinct it shares with *C. rugosus* the specific characteristics and hence is to be regarded as the *rugosus* type of this generic series.

Localities: Paris Basin (M. C. Z. 27776, 27777, Bronn, 1376, Duval; 27780 Koninck); Grignon, (M. Z. 27779, Duval); Ully, St. Georges (Acad. Sci. 8027); Damery (Am. Mus. Nat. Hist.).

Horizon: Eocene (Middle, Cossmann).

Additional Remarks.—From the beginning of the conch the whorls are marked by strong vertical ribs which bulge at the center where the two stronger spirals occur. On some specimens the earliest whorls appear somewhat more rounded than in specimen fig. 20, but the succeeding whorls are angular from the strong development of the two central spirals.

---

* *Rhopalolithes* would be more satisfactory to purists but is less euphonious.

Where the two central spirals cross the ribs, a flattened node of rather sharp character is formed, precisely as in the neanic whorls of *Falsifusus serratus,* where one node occurs, or as in *Fusus asper,* where three nodes are found. In some specimens the next spiral above approaches the main spirals in distinctness, a peripheral tricarination being thus produced. Above this the spirals decrease gradually in size toward the suture, while intercalated spirals may or may not occur. The spirals are often crowded. The shoulder is often slightly concave and the subsutural band accentuates the concavity.

Below the peripheral angulation the spirals are more uniform and subequally spaced, while intercalated spirals occasionally appear. The angular appearance of the periphery is lost in the last whorl by the increase in strength of the other spirals. In more accelerated specimens the rounded contour of the body whorl is accentuated by the faint character of the spirals, as well as the obsolescence of the ribs. A thickening of the subsutural band produces contours characteristic of *R. noæ.* This feature is particularly marked in accelerated individuals.

A crowding of the lines of growth often produces a rough cancellation of the spirals.

In a specimen in the collection of the Philadelphia Academy of Sciences the protoconch, though swollen, is more depressed than in the other specimens seen. It resembles in this respect somewhat that of *Fasciolaria.* Toward the end of the first volution are faint indications or riblets, these becoming strong and closely set on the last part of the protoconch. They then become stronger and further apart and finally appear to merge into the normal ribs of the shell. The two plications on the columella are not well preserved, owing to the chalky character of the shell.

RHOPALITHES ANGULATUS (Lamarck).

(Plate IX, figs. 14–17.)

1803. *Fusus angulatus* LAMARCK, Ann. du Museum, T. 2, p. 385.
1837. *Fusus angulatus* DESHAYES, Coq. Foss. Env. Paris, tome 2, p. 520, pl. 74, figs. 11, 12.

The protoconch of this species closely resembles that of the preceding one, being obliquely erect, smooth in the early portion, but with smooth riblets in the last part. In this, as in the preceding species, there are only two of the protoconch riblets in the most typical specimens.

The conch begins with whorls in which the angulation is but slightly marked and which are furnished with rounded ribs and subequal spirals. This quickly merges into angular whorls, in which two spirals become prominent on the periphery while the shoulder is marked by numerous fine uniform spirals, the primary ones being augmented by intercalated secondary ones. On the body of the whorl the spirals are coarse and distinct. The intercostal spaces become more and more concave, giving an undulatory instead of simply ribbed character to the surface.

In the nepionic stage this species has the character of neanic or early ephebic *R. rugoides,* this being well shown in the young specimens in figs. 14 and 15, pl. IX. Since the adult characters of *R. rugoides* show a development in the direction of the *R. noæ* type, *i. e.,* the suppressing of ribs and angularity of whorl, it is evident that if *R. angulatus* is an offshoot from *R. rugoides,* its relationship is with the more primitive varieties of that species.

The gerontic stage of *R. angulatus* has been seen in a few specimens (M. C. Z. 1382, pl. IX, fig. 21). These are large for the species, and the last whorl reaches up onto the preceding with the formation of a strong posterior sinus. In the last part of the whorl the tubercles are crowded and the strong asperations have become subdued. In another specimen (M. C. Z. 1377) the last whorl has a rounded contour, the angulation having disappeared. The ribs are round and extend over the entire surface as in a mature *R. rugoides.* The posterior canal is deep and strongly marked, and the subsutural band is very prominent. On the shoulder the spirals are fine, numerous and regular. On the body they are coarse and distant.

This individual is transitional to *R. clavelloides,* which is phylogerontic.

All the specimens examined, normal or accelerated, show two strong oblique columellar plications. These are best seen on specimens with broken outer lip, as they are only developed some distance back of the aperture. In gerontic types they apparently become obsolete, or at least are found only far back on the columella.

Localities: Paris (M. C. Z. 1384, Baucoult, 1382, Koninck, 1377, Duval); Grignon (1381, Agassiz, 1385, Duval, both M. C. Z.); Montmiraille (M. C. Z. 1383).

Horizon: Middle Eocene: Calcaire Gross. (Cossmann). Upper Eocene: Sables Moyens (Desh.).

RHOPALITHES CLAVELLOIDES sp. nov.

(Plate IX, fig. 22.)

1837. *Fusus angulatus* var. DESHAYES, Coq. Foss. Env. Paris, t. 2, p. 521, pl. 73, figs. 4, 5.

This species holds the same relation to *R. angulatus* that *R. noæ* does to *R. rugoides.* The last whorl is almost smooth, having lost its ribs, which are only represented by faint undulations. The sutural shelf characteristic of all the phylogerontic species of this and related series is well developed, and the sides are parallel to the axis of the shell. We have in this series the shelved stage following immediately upon the *rugosus* stage, the latter being represented by the *R. angulatus* type of whorl. This was already noted by Deshayes, who stated that the early whorls of this variety were precisely like those of *R. angulatus*. Two plications occur on the columella. In the specimen figured the ribs still persist as undulations but the spirals are obsolete. In the figure given by Deshayes (pl. 74, figs. 4–5) the ribs have disappeared, but the spirals are still strong. These specimens show different degrees of acceleration.

Localities: Paris Basin (M. C. Z. 1393); Grignon (Desh).

Horizon: Eocene (Upper?).

RHOPALITHES TUBERCULOIDES sp. nov.

(Plate IX, figs. 23, 24.) (Type fig. 24.)

This species occupies the position in the present series which *C. tuberculosus* occupies in the *Clavilithes* series. From five to six whorls have the characters of *R. rugoides*, having all the features found in that species. These are followed by one or more whorls which are free from ribs, and only faintly marked by spirals, these gradually becoming obsolete. These whorls are rounded in outline and furnished with a well-developed sutural shelf which slopes gently outward as in the majority of species of *Clavilithes*. In the specimen, fig. 23, which is somewhat more accelerated than the type, this shelf appears while the shell is still ribbed, thus paralleling some of the more highly accelerated species of *Clavilithes*. The posterior canal is strongly developed, and a pseudo-umbilication is produced by the separation of the inner lip from the columella.

Two young specimens of this series are in the *subtuberculosus* stage (pl. IX, figs. 18, 19). The first of these is only a step more advanced than the specimen of *R. rugoides* figured on plate IX, fig. 12, in which the last whorl shows a subduing of ribs and spirals and a general rounding of the contours. In fig. 18 the ribs have entirely disappeared but the spirals remain. The sutural shelf is moderately developed and the columella is doubly plicate. The other specimen (fig. 19) is somewhat more accelerated, the *rugosus* stage is shorter and the *subtuberculosus* stage is more strongly developed, occupying a complete volution. Two columellar plications occur. It is, of course, impossible to state whether these are the young of *R. tuberculoides* or of a form in which a *parisiensis* stage succeeds the *tuberculosus* stage, *i. e., R. noæ*.

A specimen from Ully, St. Georges (Acad. Sci. 8026), shows the characters of *R. tuberculoides*. The last whorl is rounded, without ribs but with a shelf and a slight depression or concavity below this. The spirals are strong. The penultimate whorl is similar, but without the shelf. Four distinct plications are seen far back on the columella. The subsutural band is prominent.

Another specimen from Parnes in the same collection (6897) is quite remarkable, in that it retains its ribs even onto the final whorl. The last of the ribbed whorls have a well-developed sutural shelf. The spirals also remain strong. This is a case of partial acceleration in which some of the features which normally should have disappeared are still present.

Localities: Paris Basin (M. C. Z. 1397, 27784, 27774, 1390, 27728, type); Ully, St. Georges (Acad. Sci. 8026); Parnes (M. C. Z. 27788, Acad. Sci. 6897); Chaussy (Amer. Mus.).

Horizon: Middle Eocene.

RHOPALITHES NOÆ (Chemnitz).

(Plate XVI, figs. 1–8.)

1795. *Murex noæ* CHEMNITZ, Conch. Cabin., vol. XI, p. 296, pl. 212, figs. 2096, 2097.
1803. *Fusus noæ* LAMARCK, Ann. du Museum, t. II, p. 317.
1815. *Fusus noæ* LAMARCK, Tab. Encycl. Meth., pl. 425, fig. 5.
1823. *Fusus noæ* LAMARCK, Rec. de Planches des Coq. Foss. Env. Paris, pl. IV, figs. 1, 2.
1824. *Fusus noæ* DESHAYES, Coq. Foss. Env. Paris, T. II, p. 528, pl. 75, figs. 8, 9, 12, 13.
1866. *Fusus noæ* DESHAYES, Anim. sans Vert., p. 257.
1889. *Clavilithes noæ* COSSMANN, Cat. Coq. Foss. Env. Paris, p. 174.
See also:
1896. *Fusus* (*Clavella*) *noæ* var. *orangustatus* GREGORIO, Ann. de Geol. et de Pal., Liv. 21, p. 45, pl. 4, fig. 14 *a–c*.

This species is the parallel of *Clavilithes subscalaris*. It always possesses a *rugoides* stage, the young being indistinguishable from *R. rugoides*. This stage varies in the number of whorls which it possesses, these being fewer in the more accelerated individuals. There is also some variation in the strength of the ribs and the angularity of the periphery of the whorls which is often accentuated by the strengthening of the peripheral spirals and the concomitant retention of the shoulder striæ. The strong development in accelerated individuals of the subsutural band gives the shoulder a concave appearance which further accentuates the angularity of the periphery. These variations are of the same character as those found in *R. rugoides*.

One of the characteristic features of *R. noæ* is the persistence of the spirals on the body-whorl after the acquisition of the adult characteristics. On the whorl itself they are somewhat subdued, but on the spindle they are as a rule very strong.

The specimens illustrated on plate XVI show some of the chief varieties of this very variable species. These varieties owe their origin to differential acceleration, and they present parallels to the varieties of *C. subscalaris*. Fig. 1 has a well-marked *tuberculoides* stage with rounded ribless whorls which are strongly spiralled and have a pronounced sutural shelf. This stage passes into the true *noæ* stage with cylindrical whorl, strong slightly outward sloping shelf, subdued spirals, and an elongated pyriform aperture with a pronounced square posterior canal. The *rugoides* stage occupies about four or five whorls, the last of these with faint broad ribs and a strong subsutural band. The columellar plications are scarcely visible, owing to the fact that they occur far back on the columella. They may be seen, however, in broken specimens.

Fig. 2 shows a more accelerated individual in which the *tuberculoides* stage is almost wholly crowded out. The ribbed spire (*rugoides* stage) is long, occupying about six whorls. With the disappearance of the ribs the cylindrical form is assumed, the shelf passing into the *noæ* stage. On this the shelf slopes strongly outward. The columellar plications are faintly visible.

Fig. 3 shows a young specimen which has barely passed beyond the *rugoides* stage. This latter is of very short duration and strongly spiralled. The shelf just appears on the last ribbed whorl, there being nearly a complete volution of that type. The *tuberculoides* stage is well developed. The two columellar plications are well shown as the lip is slightly broken. It appears, furthermore, to be characteristic that the columellar plications are nearer the lip in the young and the primitive species than in the adult or the accelerated species.

In fig. 4 the shelf does not appear until after the ribs have disappeared, thus producing a short stage comparable to the *subtuberculosus* stage of the *Clavilithes* series. This indicates that this individual is less accelerated than the majority of shells of this species.

A somewhat similar condition is shown in fig. 6 and to a very slight extent in fig. 8. In the latter individual the *tuberculoides* stage next succeeding is very short, being almost crowded out and replaced by the *noæ* stage. In the last whorls of this stage a rather pronounced projecting rim occurs which recalls the characteristics of *Clavilithes scalaris* to the more primitive specimens of which this is a parallel. It also forms a transition to *R. japeti,* the terminal member of this series.

Fig. 7 shows considerable acceleration in that the sutural shelf occurs in the last two ribbed whorls. Indications of the presence of the two columellar plications have been obtained in all the specimens illustrated except figs. 7 and 8. The first of these is a very old individual, and although the lip is broken the plications appear to be so far back as not to be visible.

In senescent individuals the inner lip is separated from the columella and an umbilication is produced. In specimens where the outer lip is broken away sufficiently, the columellar plications will show, even in extremely old individuals. In some highly accelerated types the *tuberculoides* stage is dropped out, the *noœ* following directly upon the *rugoides* stage, the shelf often appearing in the latter stage.

Localities: Paris Basin, numerous localities, including Chamery Grignon, Montreville, etc. (M. C. Z. 1101, 1103, 1104, 1106, 1112, 1131, 1396, 27726, 27727, 27789–27791); Ronca (De Gregorio); Grancona, Italy (Oppenheim); "Eocaen von Nizza und Ungarn" (Oppenheim).

Horizon: Eocene, Calcaire Grossier, chiefly middle. Erratic in Sables Moyens, Upper Eocene (Deshayes).

In the collection of the American Museum (Zit. 847) are several specimens from Chaussy, France, which in ornamentation have never passed beyond the *rugosus* stage. The ribs persist to the end though the specimens are large. The last whorl has a shelf. The specimens resemble *R. clavelloides* of the *angulatus* branch (pl. IX, fig. 22) though they belong to the *R. noœ* series. In all specimens the two plications on the columella are shown. In somewhat more advanced specimens ribless whorls succeed.

This is a case of retardation in development, the primitive stage being retained long (*i. e.*, the ribs), so that the shelf appears before the ribs are lost. It is not a primitve form but a retarded advanced form.

RHOPALITHES JAPETI (Tournouer).

1873. *Fusus japeti* TOURNOUER, Bull. Geol. Soc. France, 2d ser., T. 29, p. 501, tab VI, fig. 7.

1897. *Fusus japeti* TOURNOUER, Vinassa di Regny. Palæontographica Italica, III, p. 193, tav. 20, fig. 36 *a, b*.

1901. *Fusus japeti* TOURNOUER, Oppenheim Palæontographica, vol. 47, p. 216, taf. XXI, fig. 17. (See fig. 21.)

This is the terminal species of this series, holding the same relations to the preceding species that *Clavilithes scalaris* holds to the other members of that series from the Paris Basin. The best figure is that given by Oppenheim, which is here reproduced.

The nepionic whorls are round, with broad rounded ribs separated by less than their width. A narrow but strongly marked subsutural band occurs as in *R. noœ*. The spirals are strong and numerous and appear to be all of the same size.

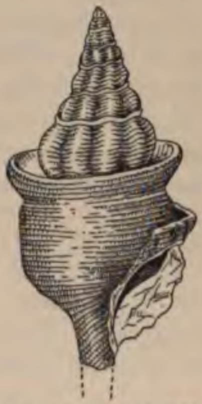


FIG. 21. *Rhopalithes japeti* slightly reduced. (After Oppenheim.)

The ephebic whorls are smooth or but faintly marked by the spirals, except on the spindle where the spirals are strong. The shelf is very pronounced and below it is a strong groove or spiral depression. The margins of the shelf are turned upwards like the rim of a saucer. The long persistence of the *rugoides* whorls, shows that the species is terminal only to a retarded branch of the series.

Oppenheim says of this species: "Die Form steht in der Mitte zwischen *Cl. Noæ* einer, und *Cl. longævus* Sol. (= *Cl. scalaris* Lam., Cossmann, Cat. IV, p. 172) anderseits; von der ersten Art besitzt sie die etwas schwächeren aber immer noch hervor tretenden Spiralen, von der letzten den rampenartigen Kiel an den letzten Windungen."

Tournouer's figure shows a less pronounced type. The spirals are stronger but the shelf is less projecting. The spiral depression below the shelf exists, however, and the preëphebic stages are *noæ*-like.

This is an important and common species in the fauna of the "Blaue Märgel" near Pau on the borders of the Pyrennees—degli Orti, Val Orcagna, Castelcies, Onigo) Northern Italy (Oppenheim).

COSMOLITHES gen. nov.

The species of this genus are fusoid shells with ribbed and spirally striate whorls which in some species become smooth toward the end. The protoconch is depressed and naticoid, consisting of about one and one half volutions. The greater portion is smooth, but toward the end are a number of fine, smooth and uniform, vertical riblets. A moderate varix marks the end of the protoconch. Columella plaited with one prominent plait, and in some specimens with an additional fainter one.

This genus differs from *Rhopalithes* in its depressed naticoid protoconch, with numerous riblets, and in its single strong plication. The differences are constant and important. These features indicate some relation to *Fasciolaria.*

Genotype: Fusus uniplicatus Lamarck.

COSMOLITHES UNIPLICATUS (Lamarck).

(Plate IX, figs. 13, 20; Plate XIII, figs. 1-3.)

(Figures 22 and 23.)

1803. ***Fusus uniplicatus*** LAMARCK, Ann. du Mus., T. II, p. 385.

1823. ***Fusus uniplicatus*** LAMARCK, Receuil Planch. Coq. Foss. Env. Paris, pl. 4, figs. 3 *a, b.* (Ann du Mus., pl. 6, fig. 3 *a, b.*)

1824. ***Fusus uniplicatus*** DESHAYES, Coq. Foss. Env. Paris, p. 536.

The protoconch of this species consists of one and one half volutions, is depressed, naticoid, the apex minute, but gradually enlarging throughout. The last portion of the protoconch is strongly ribbed, with close-set smooth vertical ribs. Toward the end faint spirals in the form of crenulations appear between the ribs but do not cross them.

The conch begins abruptly with strong revolving spirals, and rather indefinite rib-like folds or undulations. These are far apart, but in the later whorls they become more prominent and defined. During the nepionic stage they are uniform from suture to suture, but ı the neanic and ephebic stages they are strong and stout in the ıiddle, and fade toward the sutures. From the act that about half of each whorl is covered by he succeeding whorl the ribs appear to be strong ust above the suture and fade toward the upper ıortion of the whorl.

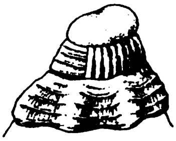


Fig. 22. *Cosmolithes uniplicatus.* The protoconch. (M. C. Z. 1127.)

Intercalated spirals appear in the second or hird volution of the conch. The columella is urnished with one strong and one weak plicaion.

This is the *rugosus* type of the present genetic series. It is charıcterized by the strong sharp spirals, which are like those of *Clavilithes ·ugosus* and the other "rugosus types" of the various genetic series ıtudied. The spirals are crowded and weak on the shoulder, but ıtrong and well spaced on the body of the whorl. The whorls embrace to near the middle, the shells thus assuming a short depressed spire. The aperture passes gradually into the canal, without the sudden constriction seen in *Clavilithes rugosus.*

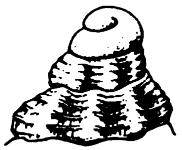


Fig. 23. *Cosmoithes uniplicatus.* Anıther view of the proɔconch and young hell stages. (M. C. . 1127.)

The erection of the protoconch and the strengthening of the weak upper columellar plication produces *Rhopalithes.* In this connection a specimen of *R. rugoides* in the collection of the Philadelphia Academy is of interest (see above, p. 136), showing a more intimate relation between the two types.

A plicated columella appears to indicate a more specialized developıent than a non-plicate one. This is indicated by the fact that in the oung the plications are often weak, and where two plications exist in ıe adult, the young sometimes show only a faint development of one, ʼhile the other is strong. From this it seems not unlikely that *hopalithes* is descended from *Cosmolithes,* and that the latter came rom some Fasciolarian ancestor.

Localities: Grignon (M. C. Z. 1127); Paris (M. C. Z. 1133, 27770, 7782).

Horizon: Eocene.

COSMOLITHES SUBUNIPLICATUS sp. nov.

(Plate XIII, figs. 4–7.)

(Compare *F. uniplicatus* Deshayes, Coq. Env. Paris, t. 2, pl. 94 bis, figs. 1–2.)

This species appears to be a derivative of *C. uniplicatus,* differing from that species chiefly in the more pronounced characters of the ribs which have more the form of strong undulations, but are more faintly marked by spirals. The upper weak columellar plication characteristic of the preceding species is also seen in some specimens of this species, though in others only one strong columellar plication occurs. A posterior canal is developed on the aperture. Intercalated spirals appear in the early volutions of the conch. In some specimens intercalation is triplicate on the body whorl. This species is readily distinguished from the preceding by the fainter spirals and the undulatory character of the ribs.

Locality: Paris Basin (M. C. Z. 1134, 1130, 1129, 1128, 1132?, 27773) (Acad. Sci. 8035, Cossmann); Grignon (M. C. Z. 27772).

Horizon: Middle Eocene, Calc. Grossier.

COSMOLITHES LÆVIGATUS (Gmelin).

(Plate XIII, figs. 8, 9, 11.)

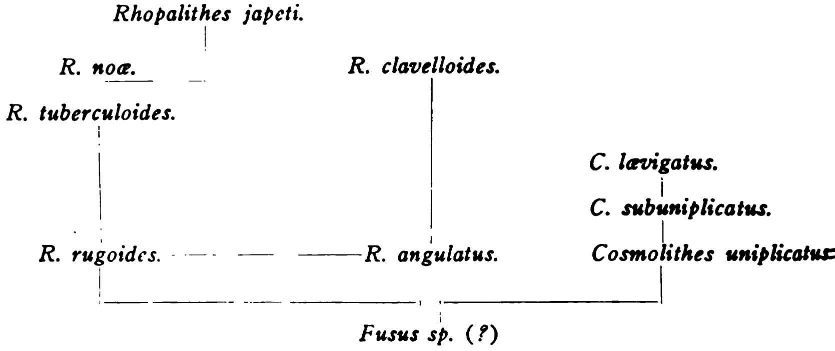
1788. *Murex lævigatus* GMELIN, Linn. Syst. Natura, Ed. 13, t. 6, p. 3555, no. 111.
1824. *Fusus lævigatus* DESHAYES, Coq. Foss. Env. Paris, p. 531, pl. 70, figs. 14, 15.
1889. *Clavilithes lævigatus* COSSMANN, Cat. Coq. Foss. Env. Paris, p. 175.

This species is closely related to the two preceding ones, from which it is distinguished mainly by the final smooth whorls. The protoconch and nepionic stage are as in the preceding species. The ribs are variously developed in the neanic stage, though they are seldom as strong as are those of the preceding species. In the ephebic whorls the ribs become obsolete. The spire is shorter and the aperture longer than in the preceding species. Lines of growth, crowded and lamellose, occur on the last portion of the body whorl, which is globose. The sutures are but slightly impressed, giving an almost uninterrupted slope to the spire. On the body whorl the spirals as well as the ribs are obsolete. Columella with a strong and a faint plication.

Localities: (?) (M. C. Z. 1122); Parnes (M. C. Z. 1121, 1123, 1126); Grignon (M. C. Z. 27771).

Horizon: Eocene, Calcaire Grosiere.

The relations of the preceding species may be expressed thus:



GEOGRAPHICAL DISTRIBUTION.

All the evidence so far obtained points to Western Europe as the place where the genus *Fusus* originated. The most primitive species of the genus yet found (*F. porrectus*) is from the Eocene beds of southwestern England.* The related French species (*F. aciculatus*) is, according to all appearances, a local modification of the primitive British species from which it has descended. As has been shown, the other so-called French Fusi probably all belong to distinct genera, as do also the species from the American Eocene beds generally referred to this genus. *F. unicarinatus* from France is probably not a true *Fusus*, but may belong to the genus *Falsifusus*. In no other Eocene formations have true species of *Fusus* been found, so far as I have been able to ascertain. Thus we are forced to regard the British Eocene seas as the ancestral home of the genus.

We have no certain knowledge of true species of *Fusus* in formations older than the Tertiary. Many Cretacic species have been referred to *Fusus*, but for the most part it is readily seen that these belong to other genera. There are, however, a few forms which need more careful study to determine whether or not they are to be considered as true Fusi. Kaunhowen described several species from the Upper (Maestrichtien) Chalk of Prussia (Gast. Maest. Kreide, pp. 81–83, pl. 9, figs. 9–11a; pl. 10, figs. 1–8) which, as far as the form is concerned, might well be considered true Fusi. This is particularly true of *F. bicinctus* Kaunh. Kaunhowen compares this species with *Fusus* (*Rhopalithes*) *angulatus* Lamarck, but this is probably merely a superficial resemblance. *Falsifusus* (?) *serratus* and *F.* (?) *unicarinatus* appear to be much more nearly related to Kaunhowen's species, and it is not improbable that these three species may prove congeneric. Of the other species described by Kaunhowen, *F. pliciferus* Binkhorst, *F. kunrædensis* Kaunh. and *F. planus* Kaunh. deserve to be considered as possible ancestral types of *Fusus*. This is suggested by the simplicity of the whorls, particularly in the first of these, and the uniform character of the ribs, which recalls that of the young *Fusus*. The character of the apical whorls is, however, unknown.

We have at present too little information to enable us to trace the migrations of *Fusus* in time immediately succeeding the Eocene. The Oligocene species known from North Germany, if true Fusi, are the only European Oligocene species so far determined.

Miocene species of *Fusus* are known in Europe from the Vienna Basin. Strangely enough the species of this district, judging from the descriptions and illustrations—and the few specimens available—are like those of the sub-apennine formation of Italy, which is considered typical Pliocene. *F. rostratus, F. bredæ, F. semirugosus* and *F. longirostris* were, if anything, more advanced in the Miocene of the Vienna basin than they were in the Pliocene (?) of Italy. The similarity of development of the species indicates a connection between the Mediterranean and the Vienna basin during the Mediterranean stage and would also suggest that the deposits in which they are found are of the same age in both regions. In the Pliocene of Italy the genus *Fusus* is well represented by two series, the *F. rostratus* series and the *F. longirostris* series. The former continued to the present time, characterizing the Mediterranean province of to-day. The *F. longirostris* series appears to have ended in one direction in such forms as *F. castellarquatensis,* and in others, in *F. inæquicostatus* and *F. etruscus,* both of which probably represent terminal members of lateral branches. The two series were undoubtedly closely related, but their relation to the Eocene species is not so clear. It is extremely probable that there are as yet undiscovered connecting series, which flourished during Oligocene and Miocene times in a still unknown area.

---

* Cossmann cites this species from "la Loire inférieure" (Ess. de Paléoconchologie Comparée, T. IV, p. 4.

If the progress of the Fusi in the Post Eocene of Europe is obscure, it is less so in the corresponding American formations. In the Miocene (or possibly Oligocene) of the West Indian region, we have good species which are not so far removed from the Eocene ancestors. These are *F. henekeni* and *F. haitensis* from Jamaica and San Domingo, the former a moderately primitive type, the latter more specialized, and representing a distinct branch. These are the earliest known species of the *F. colus* series, and they are very closely related to the Eocene species of Western Europe, though mostly growing to a much larger size. *F. eucosmius,* the modern offspring of these Miocene species, still lingers in the east American waters, having been dredged off Key West. Its nearest relatives, however, among the modern fauna, *i. e., F. turriculus, F. chinensis* and *F. reeveanus,* are far removed from it geographically, occurring, so far as known, only in the China Sea region. The other members of the *colus* series are, however, distributed throughout the Indo-Pacific province. The easternmost recorded locality in the Pacific is Tongatabue in the Tonga or Friendly Island group about longitude 175° west of Greenwich, where *F. toreumus* has been found. *Cyrtulus serotinus,* however, the phylogerontic terminal of the *F. colus* series, has been recorded from Nukahiva in the Marquisas group, longitude about 140° west of Greenwich. The easternmost locality recorded for species of this series is Mauritius in the Indian Ocean, specimens of *F. toreumus* and *F. longicaudus* having been labelled as coming from the waters near that island.

From the data at present available it seems most probable that
usus migrated westward across the Atlantic in early Tertiary times,
nd that it crossed the isthmus of Panama, during Miocene or
liocene times, when that land body was submerged, and then, crossing
e Pacific, established itself in the Indo-Pacific province, where it
ourishes to-day. Thus the most typical Fusi, *i. e.,* the species of
e *colus* series, appear to have migrated nearly around the world.
might of course be argued that the species of this series might
ave migrated eastward as far as the Indo-Pacific province, and that
e Miocene and Pliocene members of the series are still awaiting
scovery in Europe and Asia. This would leave the American species
naccounted for, since the hypothesis of a migration across the Pacific,
opposition to the prevailing currents, is hardly tenable. If it is
ssumed that migration occurred both eastward and westward, the
ery close similarity between the American *F. eucosmius* and the
hinese *F. toreumus,* which amounts almost to identity, is to be ac-
ounted for on a hypothesis other than immediate genetic relation.
o sum up then, it seems most likely that the species of the *Fusus*
olus series originated in the Eocene of Western Europe, and migrated
estward during Tertiary times, until they have all but belted the
lobe, though their resting places were only at widely separated stages,
here favorable conditions allowed development.

Turning now to the other series of *Fusus,* we find even more diffi-
ult problems indicated in their distribution. The *F. tuberculatus*
eries belongs wholly to the modern fauna, and is clearly derived from
e *F. colus* series, probably through *F. toreumus.* *F. tuberculatus* is
t home in the Indo-Pacific province, occurring on the east African
oast and islands in the Red Sea, and on the Australian coast (Queens-
nd). The northernmost branch of this series is at home in the
apan seas, this branch comprising *F. nodosoplicatus* and variety,
nd *F. perplexus* and varieties. From this latter series seems to have
eveloped the Philippine Island representative of this group, *F.*
istans. The occurrence of this latter species together with its de-
cendant, *F. closter,* in the West Indian waters (Isle of Margarita)
a most perplexing circumstance. Is it possible that this species
igrated around the Cape of Good Hope, up the west coast of Africa,
nd thence across the Atlantic to the West Indies? Or can we accept
e much more improbable idea that the species migrated eastward,
cross the Pacific, and the submerged isthmus to its present location?
he very slight differences between the West Indian and Philippine
epresentatives of the species (*F. distans*) suggests that migration
ok place in the modern period, and one or the other of these paths
ust have been chosen unless we can accept the very improbable
ypothesis of an independent origin of the species in the two waters.

The discovery of this species on the east African coast would go far to settle this question in favor of the westward migration of the species. As will be shown later, there seems to be little doubt that members of another series (*F. australis* series) of somewhat closely related Fusi have migrated along this path.

Another branch of this series, that of the large and beautiful *F. longissimus,* became widely distributed throughout the Indian ocean and the Pacific Island groups. The most specialized member of this branch, *F. undatus,* ranges from Ceylon on the west to Tahiti on the east, a range covering about 130 degrees of longitude, or more than one third the circumference of the globe.

From this same stock also originated the series of heavy or compact Fusi of which *F. beckii, F. laticostatus* and *F. nicobaricus* are typical. The first of these is a rare form, having been recorded from the Philippines only. Both *F. nicobaricus* and *F. laticostatus* are confined to the Indo-Pacific region, not having been recorded from west of Ceylon, or north and east of Liu Kiu (Loo Choo) off the south coast of Japan.

The members of the *F. australis* series have to all appearances descended from some member of the *F. tuberculatus* series, probably *F. distans.* *F. marmoratus* seems to be a direct descendant of *F. australis* and both occupy about the same territory. They are chiefly at home off the Australian coast, though they are more widely distributed in Indo-Pacific waters. A well-marked variety of *F. marmoratus* characterizes the Red Sea, but is not confined to it. This has probably given rise to the variable but characteristic *F. polygonoides* of the Red Sea, a species which has also been recorded from the East Indies.

Closely related to the Red Sea variety of *F. marmoratus* is *F. brasiliensis,* the American representative of this series. This has been found off the Brazilian coast, occurring as far south as Cape Frio, more than twenty-one degrees south of the equator. It is also recorded from the Florida coast, and specimens doubtfully labelled as coming from Suez have been identified with it. The migrations of this species, or its immediate ancestor, seem to have been around the Cape of Good Hope, and thence across the Atlantic. This may have been simultaneous with the migration of *F. distans.*

This brings us to the exclusively American *F. dupetit-thouarsii* and its various modifications. This species, at home only on the west coast of America, seems to have no immediate known Tertiary relative, unless *F. gabbi* be considered such. Its nearest living relative among the Asiatic faunas is *F. novæhollandiæ* from Australia and Tasmania. The occurrence of *F. dupetit-thouarsii* on the west coast of America suggests that its ancestors reached that coast during the Miocene submergence of the isthmus, and that we may therefore look for Miocene or earlier Tertiary ancestors of this species in the deposits of that age in tropical America. *F. gabbi,* though suggestive, is not conclusive, as the early stages of this species are unknown, and hence its relationship undetermined. *F. dupetit-thouarsii* var. *nodosus* is the most primitive representative of this series and from it all the other varieties were derived, as has been shown. *F. ambustus,* a west coast species, appears to be a lateral descendant from *F. dupetit-thouarsii nodosus.* Var. *irregularis* and *F. meyeri,* clearly derived from the more advanced members of the regular series of *F. dupetit-thouarsii,* are probably also west coast shells, though in collections the former has been labeled as coming from the East Indies. Considerable doubt is to be entertained as to the correctness of this locality, as the specimens were identified with *F. longirostris,* which it at home in the East Indian waters, and the habitat of which, together with its name, appears to have been arbitrarily applied to the specimens under discussion.

Having now traced the distributions of *Fusus* as far as the species have been studied, we may next inquire as to the probable method of migration of these organisms. Was it accomplished along a former continental platform, or was it across an Atlantic and Pacific like that of the present day? From what is known of the habitat of *Fusus* and its congeners, migration across the oceans on the present ocean bottom is out of the question, for all modern species occur only within moderate depths, being at home only in the littoral district.*

It is furthermore impossible, that migration should have taken place either along a north or a south Atlantic or Pacific shore line or continental shelf, unless wholly different climatic conditions existed at the time of such migration, for no true Fusi are known to exist outside of tropical or semitropical regions. Even if such conditions may have existed in the north or south Atlantic or Pacific during early Tertiary times, we have no evidence that they obtained in the modern period during which some of the most puzzling transoceanic migrations have taken place.

There seems thus no way to account for the migration of these organisms except by flotation during the larval period of their development. Nothing is known, so far as I am aware, of the early stages of true *Fusus.* Whether it has a free meroplanktonic veliger stage, or whether as is the case in closely related types, especially *Fulgur* and *Sycotypus,* this stage is passed through within the egg capsule, is still, I believe, to be determined. If the free veliger stage exists, transportation across the oceans, by the equatorial currents, would seem an easy matter, and the world-wide distribution of the genus within the equatorial belt would thus readily be accounted for. If, on the other hand, the veliger stage should be passed through within the egg-capsule as in *Fulgur,* or if, what seems not improbable in such accelerated types as *Fusus,* the veliger stage is dropped out altogether in the development, the problem of transoceanic migration by flotation becomes a much more serious one. In that case we have to assume that the egg-capsules, either separately or attached to sea-weeds, were carried by the equatorial currents across the oceans, and become stranded in favorable localities, where the young developed and appropriated the territory.

---

*The author follows Ortmann in the definition of the term littoral, including it the "Flach See," or all that portion of the sea bottom which is effectively illuminated by the sun's rays. Though variable, the limit of this depth is in the vicinity of the hundred-fathom line.

The development and migration of the Eocene Fusoid mollusks of other genera (*Falsifusus, Clavilithes,* etc.) present problems apparently as perplexing as that of the true Fusi. As has already been shown, the American waters contained no true Fusi though species of Fusoid form existed. *Falsifusus* may have been derived from a *Pleurotoma* stock, from which stock also *Levifusus* appears to have originated. *Euthriofusus,* the structural parallel of the latter genus, in the Miocene of Europe, was perhaps derived from the Eocene Pseudofusoids of the Paris basin. *Fulgurofusus,* the Eocene relative of *Fulgur,* may have been derived from a Fasciolarian stock. From a like stock, *Heilprinia,* was also derived, which during the Miocene submergence of the isthmus, spread on both sides of the American continents. Considerable doubt may be entertained as to the genetic relation of *Fusus serratus* Desh. and *F. uniangularis* Desh. of the Parisian Eocene with the Pseudofusi of the Gulf state region. I am strongly inclined to believe that their similarities indicate parallelism rather than relationship, and that they have arisen independently, and so belong to distinct genera, a conclusion also suggested by their structure. When we take into consideration the provincial character of the faunas of which the Parisian species and the American Pseudofusi respectively were members, it seems difficult to believe that any communication could exist between the two regions. This suggestion is not at all invalidated by the occurrence of Clavilithoids in both the Parisian and the Gulf State Eocene, for, as has already been suggested, it is not at all improbable that the two series have originated independently, and that their striking similarities are merely pronounced cases of parallelism. *Cyrtulus serotinus,* of the modern fauna, is certainly as close to the Parisian *Clavilithes* in the characters of the adult as the latter is to the American species referred to that genus. Yet *Cyrtulus serotinus,* I believe, has no genetic connection whatever with *Clavilithes,* being a phylogerontic *Fusus,* and clearly derived from the modern members of that genus, while *Clavilithes,* though possibly ived from an Eocene *Fusus*, nevertheless, belongs to an entirely tinct branch. As has been shown, there are constant differences ween the protoconchs and young conch of the American and risian Clavilithoids, and these differences appear to be due to genetic tinctness.

I believe that the Lower Eocene *Clavellofusus* is the phylorontic derivative of an Eocene *Fusus*, just as the modern *Cyrtulus* the phylogerontic derivative of a modern *Fusus*. It is not improble that *Clavilithes*, essentially a middle Eocene genus, was derived m *Clavellofusus*, though this point is by no means clearly deterned. In fact, *Clavilithes rugosus*, the radical of this series, in all t the elongated protoconch, approaches *Fusus* and may have been ependently derived from that genus. The derivation of the various ecies of *Clavilithes* of the Parisian Eocene from the radicle *C. gosus* has been traced, the series being a remarkably complete one.

Nothing so much argues for the provincial character of the Paris sin fauna than the distinctiveness of the species of *Clavilithes* which embraces. In the closely adjoining British water no identical rms existed, a marked individuality characterizing all the species. at there was a barrier between the two neighboring localities seems questionable, but that barrier was probably not land; nor was it solutely insurmountable. Nevertheless, those forms which did nsgress the limits of the province within which the series developed, re either specifically modified or soon developed characteristics which inted to a degeneration. It is highly probable that the barrier was rely caused by change in the facies of the Eocene sea bottom, ich change is clearly indicated in the lithic character of the correonding deposits. The north German Oligocene province was less disct in facies or fauna from that of England, and the intermigration species was probably more pronounced.

The Eocene of the American Gulf States had likewise its distinct ries of species which paralleled those of the Paris basin. The ccession of characteristics in the American as in the French species such a normal one, and the series in each case fall so naturally into ecies marking the successive stages in development that we need not surprised to find the specific characters identical, though charteristics of a higher taxonomic value maintain a constant difference. other words, the same species marking the same stage in the development of the series occurs in both genetic groups. In the several Eocene ovinces of France two other distinct series of phylogerontic fusoid stropods originated most likely from a *Fusus* radicle. These were *hopalithes* and *Cosmolithes*. Both have distinct generic characteriss, but in each series, species occur, which parallel those of *Clavilithes*. *hopalithes* has a typical *Fusus* protoconch, and is probably not far removed from *Fusus*. The plaited columella is a distinctive feature, but one which might be readily acquired in a strongly accelerated genus. The origin of such plaits has been discussed at length by Dall.*

Cosmolithes shows a modification of the protoconch which is depressed and more of the nature of the early whorls in *Clavilithes*. It probably was derived independently from *Fusus*. It is unknown outside of the French Eocene provinces.

---

* Tertiary Fauna Florida, vol. III, p. 58.

LITERATURE.

dams, Arthur. On the species sidæ which inhabit the seas of (Journ. of the Linnean Soc., S. 105–108, 1864.)

ldrich, T. H. Notes on Eo- Mollusca with descriptions of new species. (Bull. Am. Pal., Vol. 2, pp. 170–192, pls. 2–6.)

rnold, Ralph. The Paleontology tratigraphy of the Marine Plio- and Pleistocene of San Pedro, rnia. (Memoirs of the Cali- Academy of Sciences, vol. III.) *barbarensis* and *F. rugosus* are bed on pp. 324 and 326, and fig- on plate IV, figs. 15 and 7. paper came too late to be re- to in the text.

asterot, M. B. de. Description ocquelles fossiles des environs rdeaux. Univalves. (Mem. de iété d'histoire naturelle de Paris, 1825, pp. 17–100, pls. 1–7.)

ellardi, Luigi. I Molluschi dei ni Terziarii del Piemonte e della a. Pt. I. (Memoire della Reale emia delle Scienze di Torino,

ellardi, Luigi e. Michelotti, nni. Saggio orittografico sulla dei gastropodi fossili dei ter- Terziarii de Piemonte. Torino, (Exts. Memoire della Reale emia delle Scienze di Torino, II, Tom. III, p. 93.)

eyrich. Die Conchylien des eutschen Tertiärgebirges, Pt. IV. Turbinella. (Zeitschr. d. ch. Geolog. Gesellschaft, Bd. pp. 21–88, pls. 16–25.) No true

lainville, De. Dictionnaire des es Naturelles, Mollusks. (T. 67. p 535 et seq.)

lainville, De. Fauna Française. sks. (*Fusus*, pp. 79–89.)

rocchi, Di. G. *Conchiologia* subapennina, Tomo Secondo, Milano. P. 416, pl. 8.

. **Chemnitz, Johann Hierony-** Neues systematisches Conchylien et. 1780, Vol. 4, pp. 183–194; 1788, Vol. 10, p. 241, pl. 160, fig. 1523; 1795, Vol. 11, pp. 291 and 296, pl. 211, 212.

1843. **Chiaje, Stefano delle.** De Molluschi Pteropedi ed Eteropedi apparsi nel Cratere Napolitano. Napoli, Rendiconto, II, 1843, pp. 25–26, 105–115. (Societa Reale di Napoli (Naples), Accademia delle Scienze fisiche e matimatiche Rendiconti.)

1832. **Conrad, T. A.** Fossil shells of the Tertiary Formations of North America. Vol. 1, Philadelphia.

1834. **Conrad, T. A.** Descriptions of new Tertiary fossils from the Southern States. (Journ. Phil. Acad. Nat. Sci., 1st ser., Vol. 7, pp. 131–157.)

1842. **Conrad, T. A.** Descriptions of twenty-four new species of fossil shells chiefly from the Tertiary deposit of Calvert Cliffs, Maryland. (Journ. Phil. Acad. Nat. Sci., 1st ser., vol. 8, pp. 183–190.)

1848. **Conrad, T. A.** Observations on the Eocene formation, and descriptions of one hundred and five new fossils of that period, from the vicinity of Vicksburg Mississippi, with an Appendix. (Journ. Phil. Acad. Nat. Sci., 2d ser., vol. 1, pp. 111–134, pls. 11–14, 1848.)

1848. **Conrad, T. A.** Descriptions of new Fossil and Recent shells of the United States. (Journ. Phil. Acad. Sci., 2d ser., Vol. 1, pp. 207–214. Eocene, pp. 207–208. Plates in Journ., Vol. 2, pl. 1.)

1850. **Conrad, T. A.** Description of one new Cretaceous and seven new Eocene fossils. (Journ. Phil. Acad. Sci., Vol. 2, 2d ser., p. 39, 1850.)

1860. **Conrad, T. A.** Descriptions of New Species of Cretaceous and Eocene Fossils of Mississippi and Alabama. (Journ. Phil. Acad. Sci., 2d ser., Vol. 4, p. 275, et seq. and plates, 1860. *Fusus tippana*, p. 286.)

1865. **Conrad, T. A.** Catalogue of the Eocene and Oligocene Testacea of the United States. (American Journal of Conchology, Vol. 1, pp. 1–35.)

1865. **Cosse, H.** Description d'espèces nouvelles de la Guadeloupe. (Journ. de Conchyliologie, Tom. 13, pp. 27–38, pl. 1.)

1889. **Cossmann, Maurice.** Catalogue illustré des Coquilles Fossiles de l'Eocène des environs de Paris. Gastropodes. (Annales de la Société Royale Malacologique de Belgique, T. 24 [4me ser., T. 4].)

1893. **Cossmann, Maurice.** Notes complémentaires sur la Faune Eocénique de l'Alabama. (Annales de Géologie et de Paleontologie Gregorio, 12me Livraison.)

1901. **Cossmann, Maurice.** Essais de Paléoconchologyque Comparee, T. 4.

1889. **Dall, William Healy.** Blake Gastropoda. (Bull. Mus. Comp. Zoöl., Vol. XVIII, 1889.) 1890. (Proc. U. S. Nat. Mus., XII, 1890.)

1889. **Dall, W. H.** Preliminary Catalogue of the shell-bearing marine mollusks of southeastern coast U. S. (Bull. U. S. Nat. Mus., 37, 1889.)

1890–'95. **Dall, W. H.** Contributions to the Tertiary Fauna of Florida. (Transact. Wagner Free Inst. Science, Vol. 3.)

1898. **Dall, W. H.** A table of the North American Tertiary Horizons correlated with one another and with those of Western Europe, with annotations. (Eighteenth Ann. Report, U. S. Geol. Survey, Pt. II, pp. 327–348, with table.)

1824. **Deshayes, G. P.** Description des Coquilles Fossiles des environs de Paris. T. 2, Mollusques. Paris, 1824. Atlas. (1837.)

1830. **Deshayes, G. P.** Encyclopédie méthodique. Hist. Nat. des vers, par Bruguière et de Lamarck, continuée par Deshayes. T. 2, pt. 2, 1830. Paris, pp. 147–161. 40 species.

1831. **Deshayes, G. P.** Description of *Fusus laticostatus*. (Magasin de Conchyliologie, par F. E. Guérin, Paris, 1830, 1st and 2d Livraison, p. 21, pl. 21.)

1866. **Deshayes, G. P.** Descriptions des Anim. sans Vertèbres, déconverts dans le basin de Paris. T. III, pp. 250–291.

1858–1870. **Dunker, Guilielmo.** Novitates Conchologicæ Mollusca Marina. Beschreibung und Abbildung neuer od. wenig gekannter Meeres conchylien, 1858–70.

1882. **Dunker, Guilielmo.** Index Molluscorum Maris Japonici. 1882. Novitates Conchologicæ Supplement VII.

1880–1887. **Fischer, Paul.** Manuel de Conchyliologie et de Paléontologie Conchyliologique, etc. Paris.

1879–1882. **Fontannes, Francisqu[illegible]** Les Mollusques Pliocènes de la Vall[illegible] du Rhone et du Roussillon. T. 1[illegible], Gastéropodes des Formations Marin[illegible] et Saumatres. Paris et Lyons. L[illegible] invert. du Bassin Test. du Ind. et [illegible]e la France.

1868. **Foresti, Lodovico.** Catalogo d[illegible]i Molluschi Fossili Pliocenici dell Co[illegible]lline Bolognesi. Bologna, 1868.

1877. **Fuchs, Theodor.** Geologisch[illegible]he Uebersecht der jungeren Tertiärbild[illegible]dungen des Wiener Beckens und d[illegible]es Ungarisch-Steierischen Tieflande[illegible]s. (Zeitschr. Deutsch. Geol. Gesellsch[illegible]h., 1877, pp. 653–709. With bibliography. [illegible].)

1860. **Gabb, Wm. M.** Descriptions o[illegible] of new species of American Tertiary an[illegible]nd Cretaceous fossils. Journ. Phil. Aca[illegible]d. Sci., 2d ser., Vol. 4, p. 375 et seq. wit[illegible]th plates, 1860.)

1774. **Ginanni, Francesa.** Istori a civil[illegible]le e naturale delle pinete Ravermati nell[illegible]la quale se tratta della loso origin[illegible]e, situazione fabriche antiche e modorn[illegible]e, terre moltiplici, aqua, aria, fossili [illegible]li, vegetabili, animali, terrestri, volatili [illegible]li, aquatili, anfili, insetti, vormi, etc. Op. [illegible]p. postuma con 18 tar. e 2 cart geogr. [illegible]r. gr. in.—4. Roma, 1774, Salomon[illegible]n. (Not seen.)

1788. **Gmelin.** Linné's Systema Naturae ed. 13, Tom 1, pars VI, Vermes testacea. *Murex*, pp. 3524–3565; includes *Fusus*.

1853. **Gould, Augustus A.** Description of shells from the Gulf of California and the Pacific Coasts of Mexico and California. (Boston Journ. of Nat. Hist., Vol. VI, 1850–57, pp. 374–408, pls. 14–16.)

1902–1903. **Grabau, A. W.** Studies of Gastropoda. I. (Am. Naturalist, Vol. XXXVI, pp. 917–945). Same II, Fulgur and Sycotypus (Am. Nat., Vol. XXXVII, pp. 515–539, 1903.

1836. **Grateloup.** Ier Mémoire de la Conchyliologie fossile du bassin de l'Adour. (Actes de la Société Linn. de Bordeaux, 1836, T. 8.)

1840. **Grateloup.** Conchyliologie fossile des Terrain Tertiaires au Bassin de l'Adour-Environs de Dax, T. 1.

Gregorio, Marquis Antoine de. graphie de la Faune Eocénique Alabama et surtout de celle de orne de l'etage Parisien. (Ann. ol. et de Paléont., 1890, 7e et 8e ison, pp. 316, 45, plates.)

Gregorio, Marq. Antoine de. iption des Faunes Tertiaires de netie; Monographie de la Faune nique de Roncà. (Annales de gie et Paléontologie Gregorio, 21 ison, Turin, Palermo.)

Guppy, R. J. Lechmere. On the ene fossils of Haiti. (Quart. . Geol. Soc. Lond., Vol. 32, pp. 32, pls. 28 and 29.)

Harris, George T., and Burrows, y W. The Eocene and Oligo- beds of the Paris Basin. London, ersity College.

Harris, Gilbert D. New and wise interesting Tertiary Mol- from Texas. (Proceedings of Academy of Natural Sciences, delphia, Vol. 1895, pp. 45–88, 9 .)

Harris, Gilbert D. The Midway . (Bulletin American Palæontol- No. 4, Vol. 1, pp. 117–270, pls. .)

Harris, Gilbert D. The Lignitic . Pt. II, Scaphopoda, Gastro- Pteropoda, and Cephalopoda. . Am. Palæontology, No. 11, Vol. . 1–128, pls. 1–12.)

Hauer, Franz, Ritter von. Die gie und ihre Anwendung auf die tniss der Boden-beschaffenheit Osterr.-Ungar. Monarchie, 681 and many ill.

Heilprin, Angelo. The Tertiary gy of the Eastern and Southern ed States. (Journ. Acad. Nat. Philadelphia, 2d ser., Vol. 9, pp. 54, pl. IV, 1884.)

Heilprin, Angelo. Explorations e West Coast of Florida and in keechobee wilderness. (Transact. ner Free Inst. Sciences, Vol. I.)

Hinds, Richard Brinsley. De- tions of new shells from the col- n of Captain Sir Edward Belcher. Annals and Magazine of Natural ry, Vol. XI, pp. 255–257.)

Hinds, R. B. Zoölogy of the ge of H. M. S. *Sulphur*, Capt. Belcher. Vol. II, Mollusca.

Hoernes, R., and Auinger, M. asteropoden der Meeres-Ablagerungen der Ersten und Zweiten Miocänen Mediterran-stufe in der Osterreichisch-Ungarishen Monarchie. Wien, 1890, Alfred Hölder.

1856. **Hörnes, Moritz (and Partch, Paul).** Die Fossilen Mollusken des Tertiaer-Beckens von Wien. Bd. I, Univalven. (Abhandlungen der Kaiserlich-Königlichen Geologischen Reichsanstalt, Bd. III, Wien.

1899. **Johnson, Chas. W.** Description of new Tertiary species from the Isaac Lea collection. (Proc. Acad. Nat. Sci. Phil., 1899, pp. 71–82, pl. 1.)

1901. **Johnson, Chas. W., and Grabau, A. W.** A new species of *Clavilithes* from the Eocene of Texas. (Proc. Acad. Nat. Sci. Phil., Nov., 1901, pp. 602, 603.)

1898. **Kaunhowen, F.** Die Gastropoden der Maestrichter Kreide. (Palæontologische Abhandlungen, Dames und Koken Neue Folge, Band IV (VIII), Heft 1, pp. 1–132, pls. I–XII.)

1842. (?) **Kiener, L. C.** Spécies général et Iconographie des Coquilles vivantes. Monograph *Fusus*.

1881. **Kobelt, Wm.** Monograph of *Fusus*. Martini-Chemnitz; Neues Conchilien Cabinett, fortgesetzt von Kobelt. Section *Fusus*.

1883. **Kobelt, W.** Iconographie der Schalentragenden Europäischen Meeresconchilien. *Fusus*, p. 49. Heft 3.

1863. **Koenen, Adolph von.** On the correlation of the Oligocene Deposits of Belgium, Northern Germany, and the South of England. (Quart. Journ. Geol. Soc. London, Vol. 20, pp. 97–102.)

1865. **Koenen, A. von.** Die Fauna der unter-oligocänen Tertiärschichten von Helmstädt bei Braunschweig. (Zeitsch. d. deut. Geolog. Gesellschaft, Bd. 17, p. 459 et seq., pls. 15 and 16.)

1867. **Koenen, A. von.** Ueber die Parallelisirung des nord deutschen, englischen, und französischen Oligocäns (Zeitsch. Deutsch. Geol. Ges., XIX, 1867, pp. 23–32 and table of correlations.)

1867. **Koenen, A. von.** Das marine Mittel-Oligocän Norddeutschlands und seine Mollusken Fauna. 1867–68, I–II. Palæontographica, Bd. XVI, pp. 53–128.

1889. **Koenen, A. von.** Das Norddeutsche Unter-Oligocän und seine Mollusken Fauna. Lieferung 1. (Abhand. Geol. Special Kart. Preuss., X, 1889, Heft. 1. Strombidæ, Muricidæ, Buccinidæ.)

1803. **Lamarck, J. B. P. A. de.** Memoires sur les fossiles des environs de Paris. Genre Fusus. (Annales du Muséum National d' Histoire Naturelle, T. 2, pp. 316–321, 385–389, 33 species.)

1816. **Lamarck, J. B. P. A. de.** Tableau encyclopédique et méthodique des trois règnes de la nature. Vingt-troisième partie, Mollusques et polypes divers. Paris, Chez Mme. Veuve Agasse, 1816 (p. 6), pls. 423–425.

1820. **Lamarck, J. B. P. A. de.** Dictionaire des Sciences Naturelles. T. 17, pp. 535–542. (Fourteen recent and several fossil species described. 1820.)

1822. **Lamarck, J. B. P. A. de.** Histoire Naturelle des Animaux sans Vertèbres. T. 7, 1822, pp. 121–136. (Thirteen species *Fusus* described Supp., pp. 564–570, same vol.)

1823. **Lamarck, J. B. P. A. de.** Recueil de Planches des Coquilles Fossiles des environs de Paris. Paris, Pl. 4, T. 6. (Ann. de Mus., pl. 46. With reprint of Memoire sur les Foss. des env. de Paris.)

1843. **Lamarck, J. B. P. A. de.** Histoire Naturelle des Animaux sans Vertèbres, 2d éd., par Deshayes et Milne Edwards. Tome 9, Hist. des Mollusques. Paris. (*Fusus*, pp. 439–502; 60 recent and 52 fossil species.)

1896. **Linden, Gräfin Maria von.** Die Entwicklung der Skulptur und Zeichnung bei den Gehäuseschnecken des Meeres. (Zeitschrift für Wissenschaftliche Zoologie (Engelman, Leipzig), Vol. 61, 1898, pp. 261–317, pls. 12, 13.)

1767. **Linné, Caroli a.** Systema Naturæ, Ed. 12, T. 1, part II.

1868. **Lischke, Dr. C. E.** *Fusus inconstans.* Mal. Blätt. XV, 218, 1886; Jahrbuch Mal. Gesell. I, 115 t. 6; Japanese Conchology, t. 1, figs. 1–6.

1869. **Lischke, Dr. C. E.** Japanische Meeres Conchilien, Pt. I. Cassel, Theodor Fischer, 1869. (Novitates chonchologicæ. Supplement 4.) 1871. Ibid., pt. 2. 1874. Ibid., Pt. 3. Atlas.

1784. **Martyn, Thomas.** The Universal Conchologist. London. (*Fusus* part not seen.)

1877. **Mayer, Charles.** Sur la Carte géologique de la Ligurie centrale. Bull. Géol. Soc. France (3), V, pp. 282–297. (Gives subdivisions.)

1877. **Mayer, Karl (Mayer-Eymar).** Systematisches Verzeichniss der Versteinerungen des Parisian der Ungegend von Einsiedeln. (Anhand. zu der Geolog. Beschreib von Schwyz, von F. Kaufman.)

1887. **Mayer-Eymar, Karl.** Systematisches Verzeichniss der Kreide und Tertiär Versteinerungen der Umgegend von Thun. (Beiträge zur Geologischen Karte der Schweiz. 24 Lief., 2 Theil, Beilage.)

1831. **Michelin.** *Fusus inconstans* Michelin. Descript. of Species. (Magazin de Conchyliologie, 1830, par F. E. Guérin, p. 33, pl. 33.)

1847, **Michelotti, Giovanni.** Description des Fossiles des terrains Miocènes de l'Italie septentrionale. (Natur Kundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem. 2d Verz., derdideel. Haarlem, 1847.)

1792. **Olivi, Abate Giuseppe.** Zoologia Adriatica. *Murex* (*Fusus*) *rostratus* described, p. 153.

1901. **Oppenheim, Dr. Paul.** Die Priabonaschichten und ihre Fauna. (Palæontographica, Vol. 47. *Fusus* (*Rhopalithes*), p. 216.)

1862. **Pecchioli, Vittorio.** Di un nuovo fossile delle Argille subapennine. (Lettera di Vittorio Pecchioli all' egrigio Amico Sig. Dott Cesare, d'Ancona. (Torenzi. With plate.)

1851. **Petit de la Saussaye, S.** Descriptions d'un nouvelle espèce du genre Fuseau (*Fusus*) Lam. (Journ. Conchyl. II, pp. 254–255.)

1851. **Petit de la Saussaye, S.** Description de Coquilles nouvelles (*Fusus*, etc.). Journ. Conchyl., II, pp. 365–368.)

1853. **Petit de la Saussaye, S.** Description de deux Coquilles nouvelles Appartenant aux genres *Fusus* et *Bulimus*. (Journ. de Conchyl., T. 4, p. 249–251, pl. 8.)

1845. **Philippi, Dr. R. A.** Abbildungen und Beschreibungen neuer oder wenig gekannter Conchilien. 3 vols., 1845–1851, Cassel.

1884. **Quenstedt, Friedrich August.** Petrefactenkunde Deutschlands. Bd 7, Gastropoden und Atlas.

Quoy et Gainard. Voyage de
'olabe 1826–29. M. J. Dumont
rille, commandant. Zool., T. 2,
, 1832.

Reeve, Lovell Augustus. Con-
gia iconica. Monograph genus
t. London, 1847.

Regny, P. E. Vinassa de. Syn-
dei Molluschi Terziari delle Alpi
te. (Palæontographica Italica,
III, p. 193.)

Risso, A. Histoire Naturelle des
ipales productions de l'Europe
lionale. T. 4, *Fusus*, pp. 206–

Rouault, Alexandre. Description
fossiles du Terrain Éocène des
ons de Pau. Mémoire de la
tê Géologique de France, 2d ser.,
I, Pt. 2, pp. 457–502, pls. 14–18.)

63. **Sandberger, C. L., Fridolin.**
ıylien des Mainzer Tertiärbeck-
Wiesbaden, 1860–63.

Smith, Edgar A. On a collec-
of Mollusca from Japan. (Pro-
ıgs of the Zoological Society of
ɔn for 1879, pp. 181–218, pls.
o.)

Solander. Description of Spe-
Fossilia Hantoniensia collecta et
useo Britannico deposita a Gus-
Brander. London.

Sowerby, George B. Description
ew species of shells found by
Hawker, Esq. (Quart. Journ.
gical Society London, Vol. 6, pp.
, pls. 9 and 10.)

Sowerby, G. B. Thesaurus con-
ɔrum or Monographs of Genera
ıells. Edited by G. B. Sowerby,
. Vol. IV., Monograph *Fusus*.

Sowerby, James. The Mineral
ıology of Great Britain, Vol. 1; 1818, same, Vol. 2; 1821, same, Vol. 3; 1823, same, Vol. 4; 1825, same, Vol. 5; 1829, same, Vol. 6; 1840, same, Vol. 7.

1845. **Sowerby, James.** Conchyliologie Minéralogique de la Grande Bretagne Traduit par E. Desor, with additions by L. Agassiz. With atlas.

1835. **Swainson, William.** Elements of Modern Conchology. (Not seen.)

1840. **Swainson, William.** A Treatise on Malacology or Shells and Shell Fish. Cabinet Cyclopædia Natural History. London.

1875. **Tapparone-Canefri, C.** Muricidi del Mar Rosso. (Ann. Mus. Civ. Genova, Vol. VII, p. 569 et seq., pl. 19. *Fusus*, pp. 623–629.)

1873. **Tournouer.** Note sur les fossiles tertiaires des Basses-Alpes recueillis P. M. Garnier. (Bull. Soc. Géol. France II ser. t. 29, pp. 492–514, pls. V–VII.)

1855. **Trask, J. B.** Descriptions of fossil shells from the Tertiary deposit of the lower coast. (Proceedings of the California Academy of Natural Sciences, Vol. 1, pp. 41, 42.)

1868. **Troschell, Dr. F. H.** Das Gebiss der Schecken zur begründung einer natürlichen Classification, Vol. 2, Berlin.

1881. **Tryon, George W.** Manual of Conchology. Vol. III, Tritonidæ, Fusidæ, Buccinidæ. Philadelphia.

1829. **Wood, William.** Hampshire Fossils, by Brander. Plates reprinted with a list of the figures and references to the works of Lamarck and Sowerby, London.

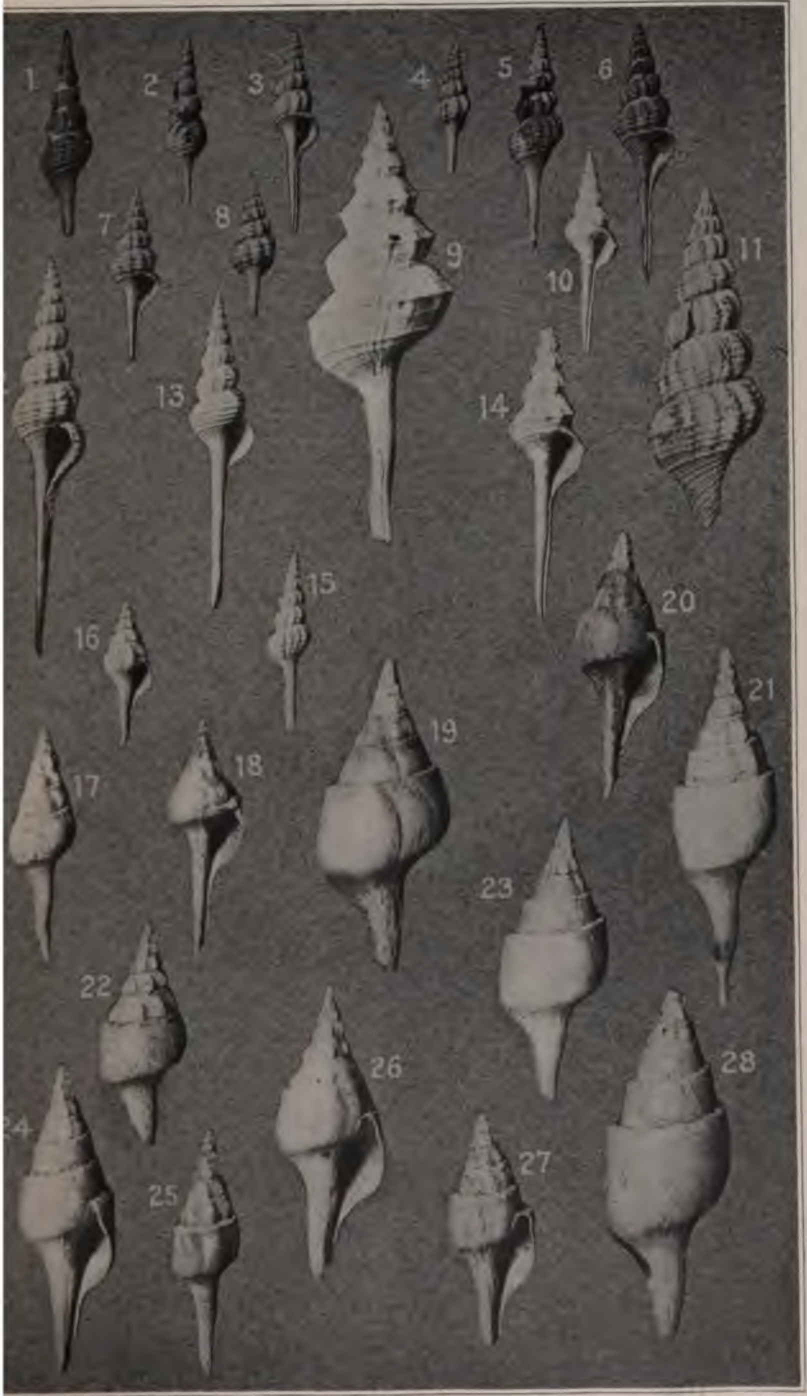
EXPLANATION OF PLATES.

PLATE I.

(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge. The catalogue numbers are given. The illustrations are slightly reduced.)

PAGE

Figs. 1 and 2. *Fusus acuminatus* (1409, 1408), Eocene, Barton, England... 15
3 and 4. *Fusus aciculatus*, British type (1406, 1401), Eocene, Barton Cliff, England.. 13
5. *Fusus porrectus* (1402), Eocene, Barton Cliff, England............ 11
6. *Fusus aciculatus*, leading to *F. porrectus* (1400), Eocene, Hordle Cliff, England.. 13
7. *Fusus asper* (1404), Eocene, Muddiford Harts, England............ 16
8. *Fusus asper* (27733), Eocene, England........................... 16
9 and 10. *Falsifusus serratus* (1399, 1397), Eocene, Paris Basin...... 84
11. *Fusus porrectus* (1402), Eocene, Barton Cliff, England............ 11
12. *Fusus porrectus* (1400), Eocene, Hordle Cliff, England............ 11
13. *Fusus aciculatus*, Parisian type (1410), Eocene, Parnes, France.... 17
14. *Falsifusus serratus* (1405), Eocene, Paris Basin.................... 84
15. *Fusus aciculatus*, Parisian type (1411), Eocene, Paris.............. 17
16. *Clavellofusus spiratus*, young (1900)............................ 99
17. *Clavellofusus spiratus* (27731)................................. 99
18. *Clavellofusus tuberculatus* (27732).............................. 101
19. *Clavellofusus tuberculatus* (type, 27729)........................ 101
20. *Clavellofusus spiratus* (27731)................................. 99
21. *Clavellofusus macrospiratus* (1097).............................. 102
22. *Clavellofusus tuberculatus* (27734).............................. 101
23. *Clavellofusus spiratus* (type, 1096)............................. 99
24, 25 and 27. *Clavellofusus macrospiratus* (1097).................. 102
26. *Clavellofusus spiratus* (27731)................................. 99
28. *Clavellofusus macrospiratus* (type, 27730)........................ 102
16–28. Lower Eocene, Paris Basin.



TERTIARY FUSUS AND CLAVELLOFUSUS.

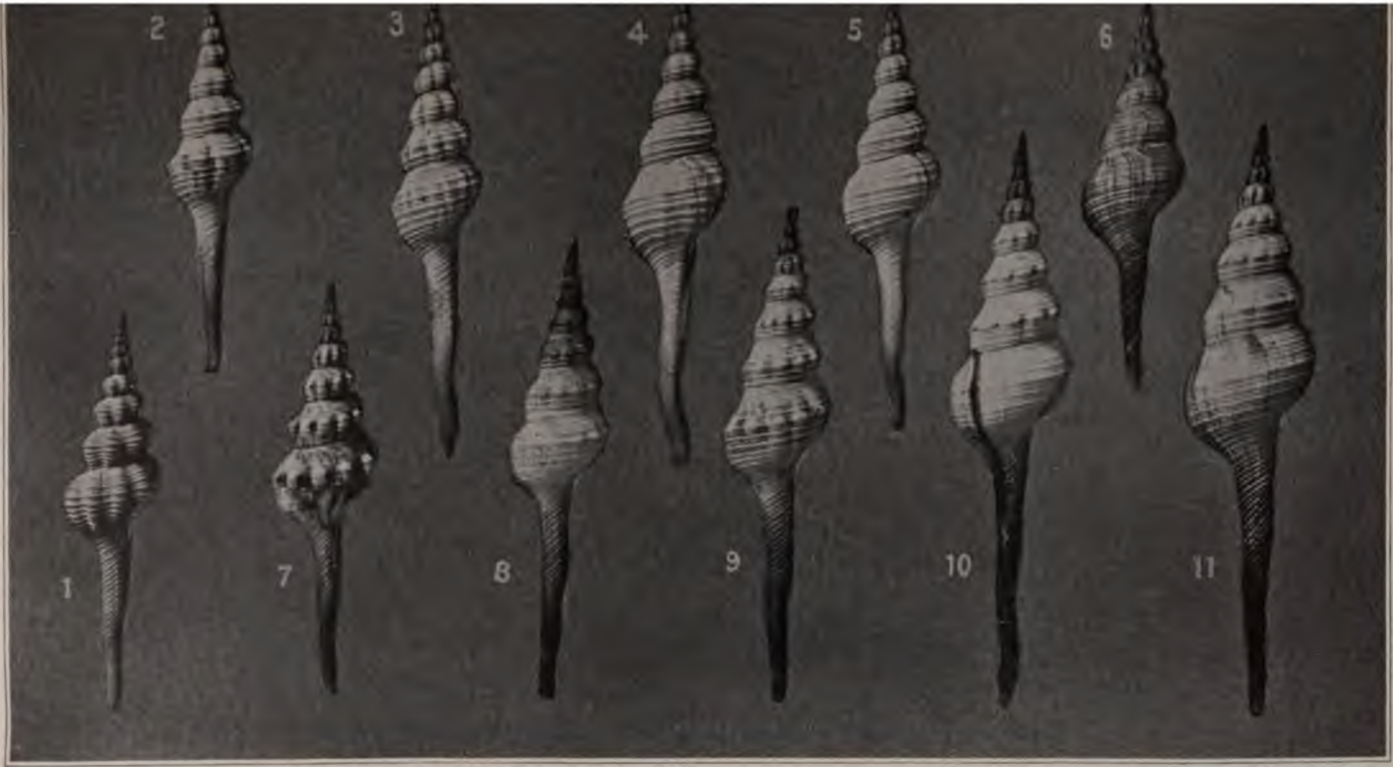
PLATE II.

The Fusus colus Series.

(M. C. Z., Museum of Comparative Zoology; B. S., Museum of the Boston Society of Natural History. The illustrations are reduced.)

PAGE.

Figs. 1. *Fusus turriculus* (M. C. Z. 33).. 21
2 and 3. *Fusus longicaudus* var. *toreumoides* (M. C. Z. 905)......... 23
4. *Fusus longicaudus* (M. C. Z. 905).. 23
5. *Fusus longicaudus* (B. S. 6080).. 23
6. *Fusus longicaudus* (M. C. Z. 906).. 23
7. *Fusus toreumus* (B. S. 219).. 24
8–11. *Fusus colus* (B. S. 219, M. C. Z. 32, 902, 902)........................ 25



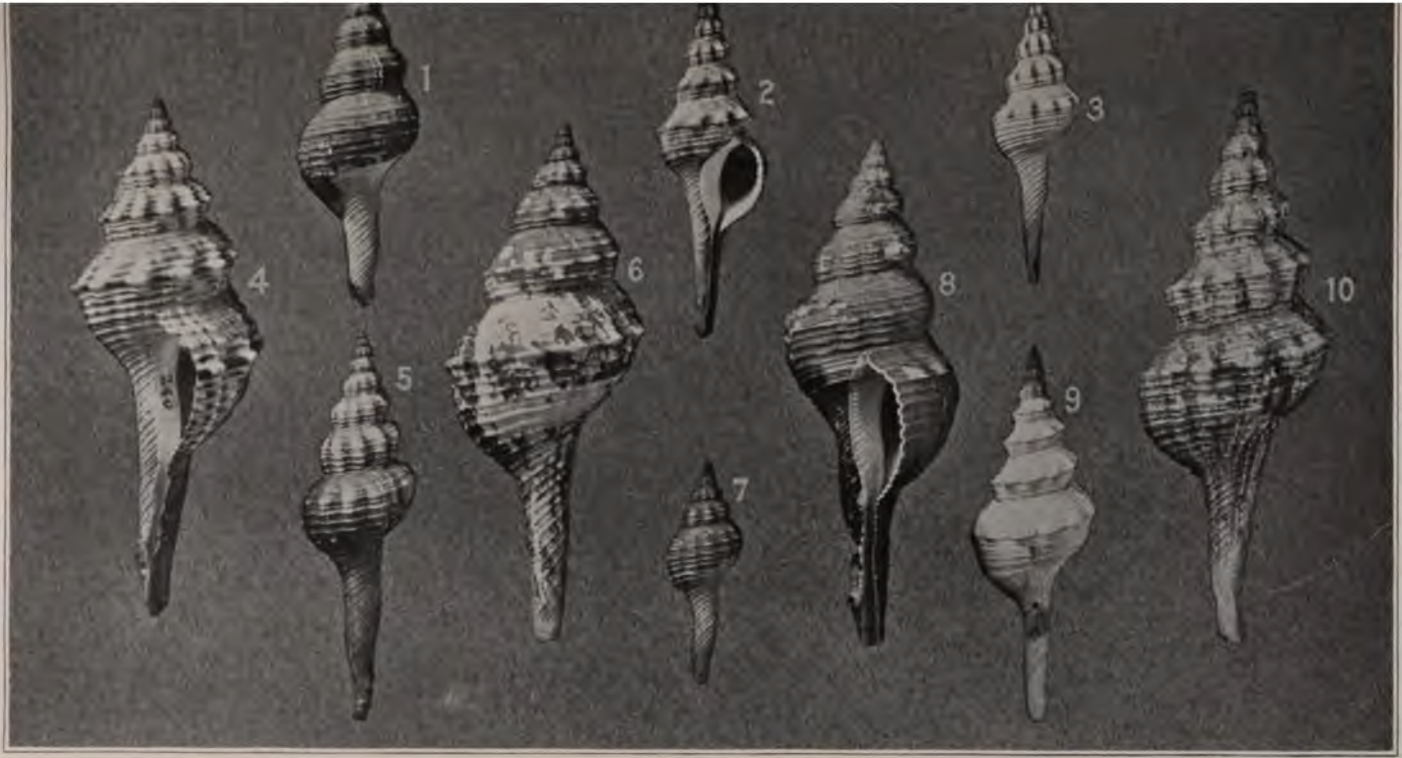
RECENT SPECIES OF THE FUSUS COLUS SERIES.

PLATE III.

The Fusus distans and Other Series.

(M. C. Z., Museum of Comparative Zoology; B. S., Museum Boston Society Natural History. All the illustrations are reduced.)

		PAGE.
Figs. 1.	*Fusus closter*, young (M. C. Z. 919)	38
2.	*Fusus tuberculatus* (B. S. 1809)	30
3.	*Fusus tuberculatus*, young (M. C. Z. 887)	30
4.	*Fusus distans* (B. S. 260)	36
5.	*Fusus nodosoplicatus* var. *lischkii* (M. C. Z. 895)	32
6.	*Fusus distans* (M. C. Z. 897)	36
7.	*Fusus distans*, young (M. C. Z. 921)	36
8.	*Fusus closter* (M. C. Z. 919)	38
9.	*Fusus tuberculatus* (M. C. Z. 885)	30
10.	*Fusus nodosoplicatus* (M. C. Z. 894)	32

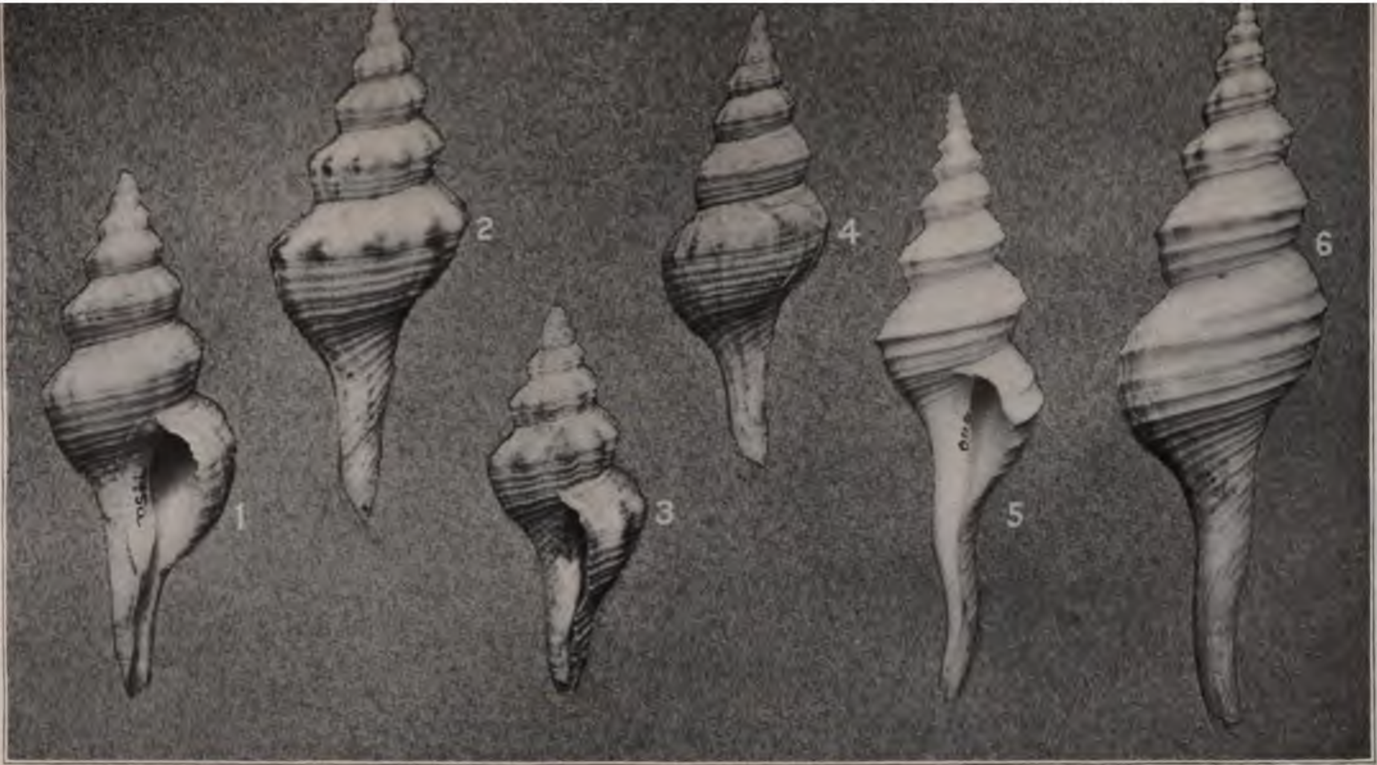


RECENT SPECIES OF FUSUS.

Plate IV.

(M. C. Z., Museum of Comparative Zoology.)

	Page.
Figs. 1. *Fusus brasiliensis* (M. C. Z. 945*a*)	66
2. *Fusus brasiliensis,* type (M. C. Z. 945)	66
3. *Fusus brasiliensis* (M. C. Z. 947)	66
4. *Fusus brasiliensis* var. (M. C. Z. 947*a*)	66
5 and 6. *Fusus dupetit-thouarsii* var. *irregularis* (types, M. C. Z. 940)	48

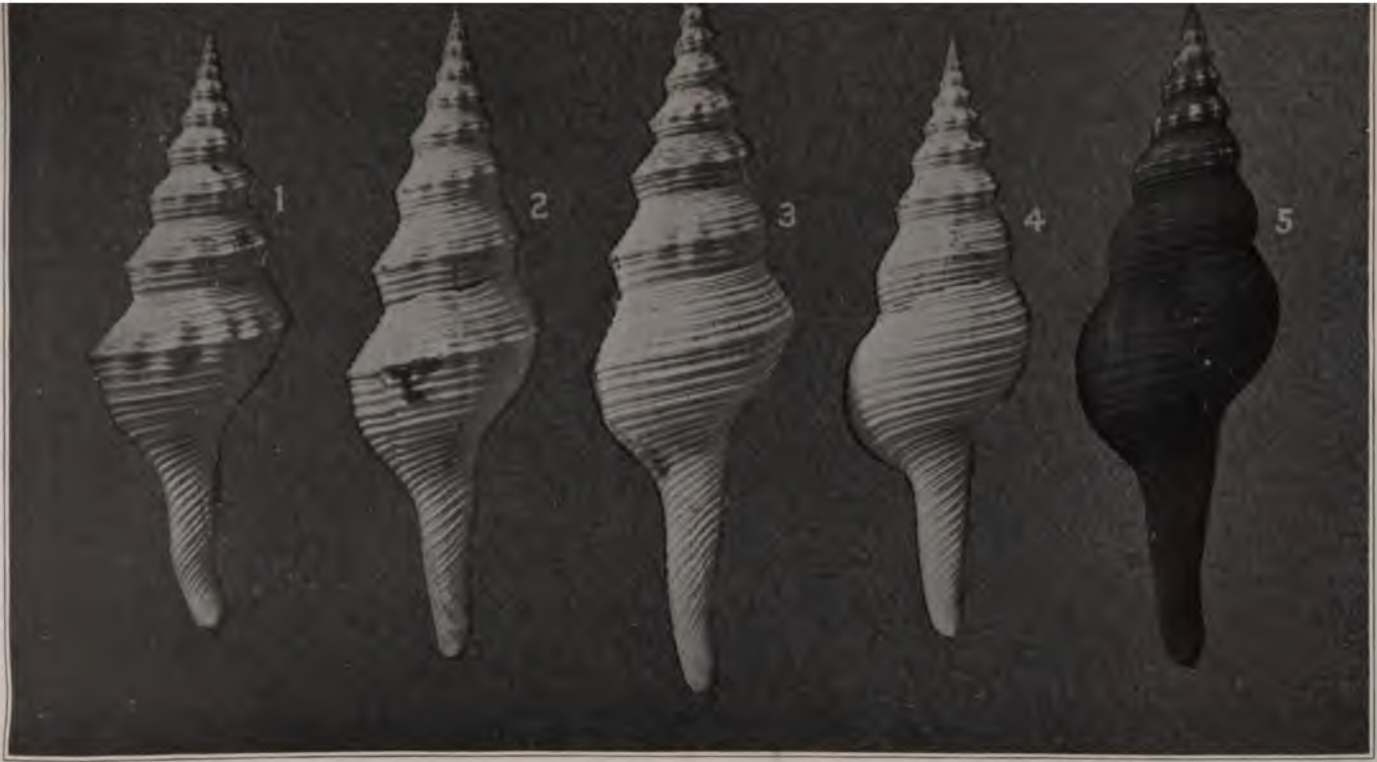


RECENT SPECIES OF FUSUS.

PLATE V.

(M. C. Z., Museum of Comparative Zoology. The illustrations are reduced)

	PAGE
Figs. 1. *Fusus dupetit-thouarsii* var. *nodosus* (M. C. Z. 913 type)	46
2 and 3. *Fusus dupetit-thouarsii* (M. C. Z. 910, 913)	47
4. *Fusus dupetit-thouarsii*, transitional variety (M. C. Z. 913)	47
5. *Fusus dupetit-thouarsii* var. *aplicatus* (M. C. Z. 913, 912 type)	47



THE FUSUS DUPETIT-THOUARSII SERIES.

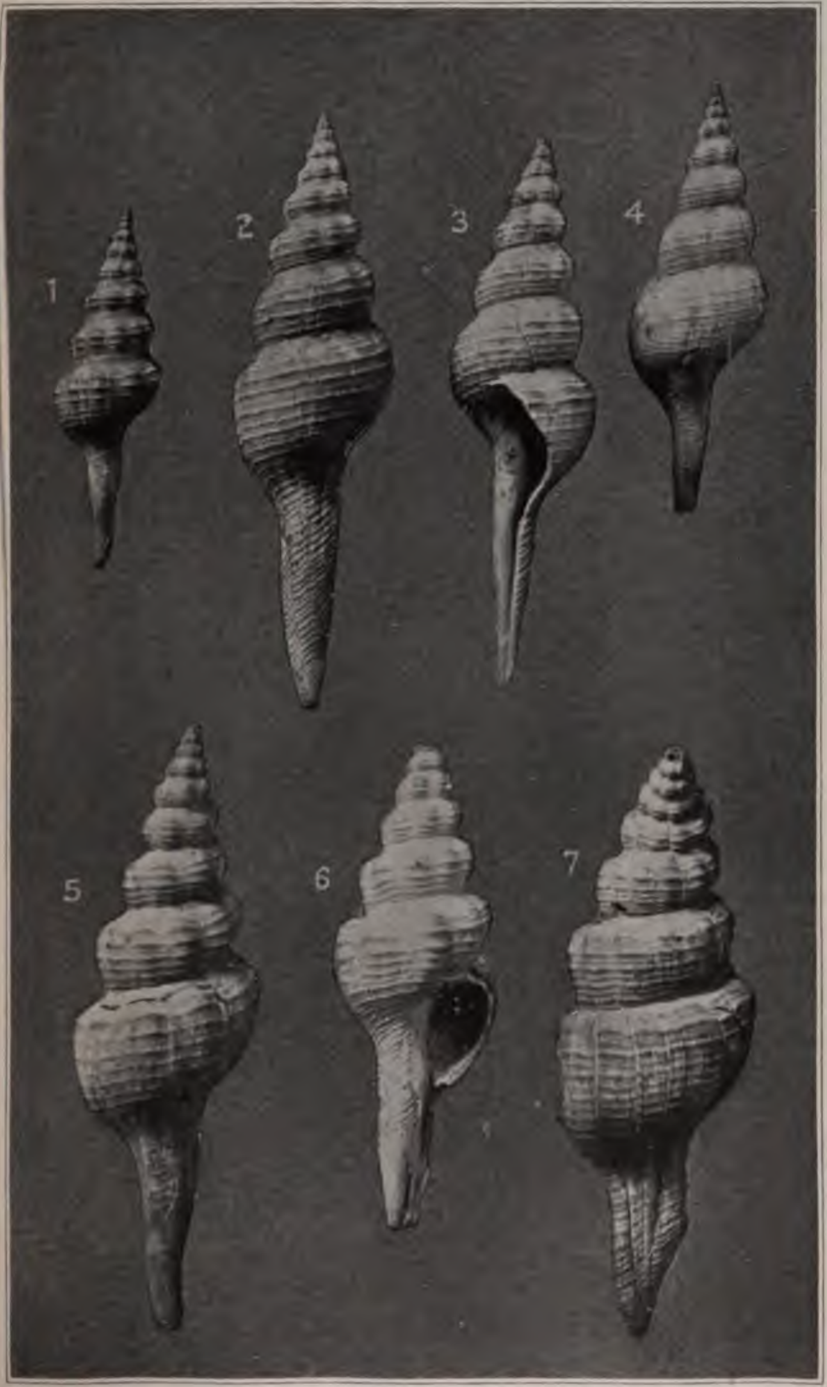
PLATE VI.

The Fusus longirostris Series (Pliocene).

(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge. The illustrations are reduced.)

PAGE.

Figs. 1–3. *Fusus longirostris*, typical varieties (1217, 27797, 1223)............ 52
4. *Fusus castelarquatensis* (type, 27795)............ 54
5–7. *Fusus inæquicostatus*, showing progressive variation (1216[illegible], 1216, 27795)............ 55



TERTIARY SPECIES OF FUSUS.

PLATE VII.

The Fusus rostratus Series.

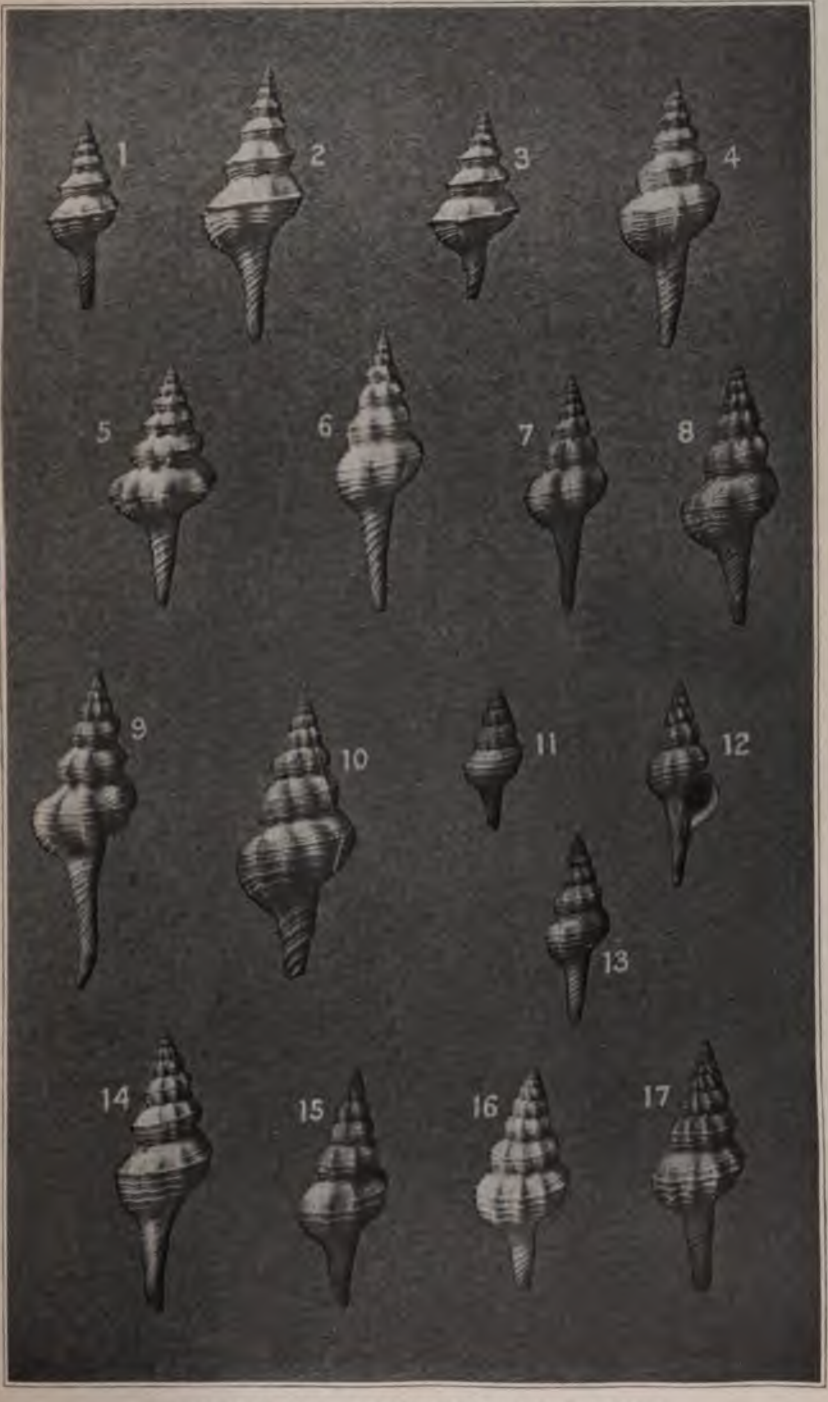
(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge. The illustrations are slightly reduced.)

a. Pliocene.

		PAGE.
Figs. 1–3.	*Fusus bredæ*, showing progressive variation (1452, 1453, 1452)	60
4–10.	*Fusus rostratus*, showing principal varieties (1449, 27805, 1449, 1450, 1448, 1450, 1450)	58

b. Recent Species.

		PAGE.
11.	*Fusus fragosus?* (926)	62
12 and 13.	*Fusus fragosus* (922)	62
14.	*Fusus rostratus* var. *carinatus* (923)	63
15 and 16.	*Fusus rostratus* (923, 924)	63
17.	*Fusus carinatus?* (925)	65

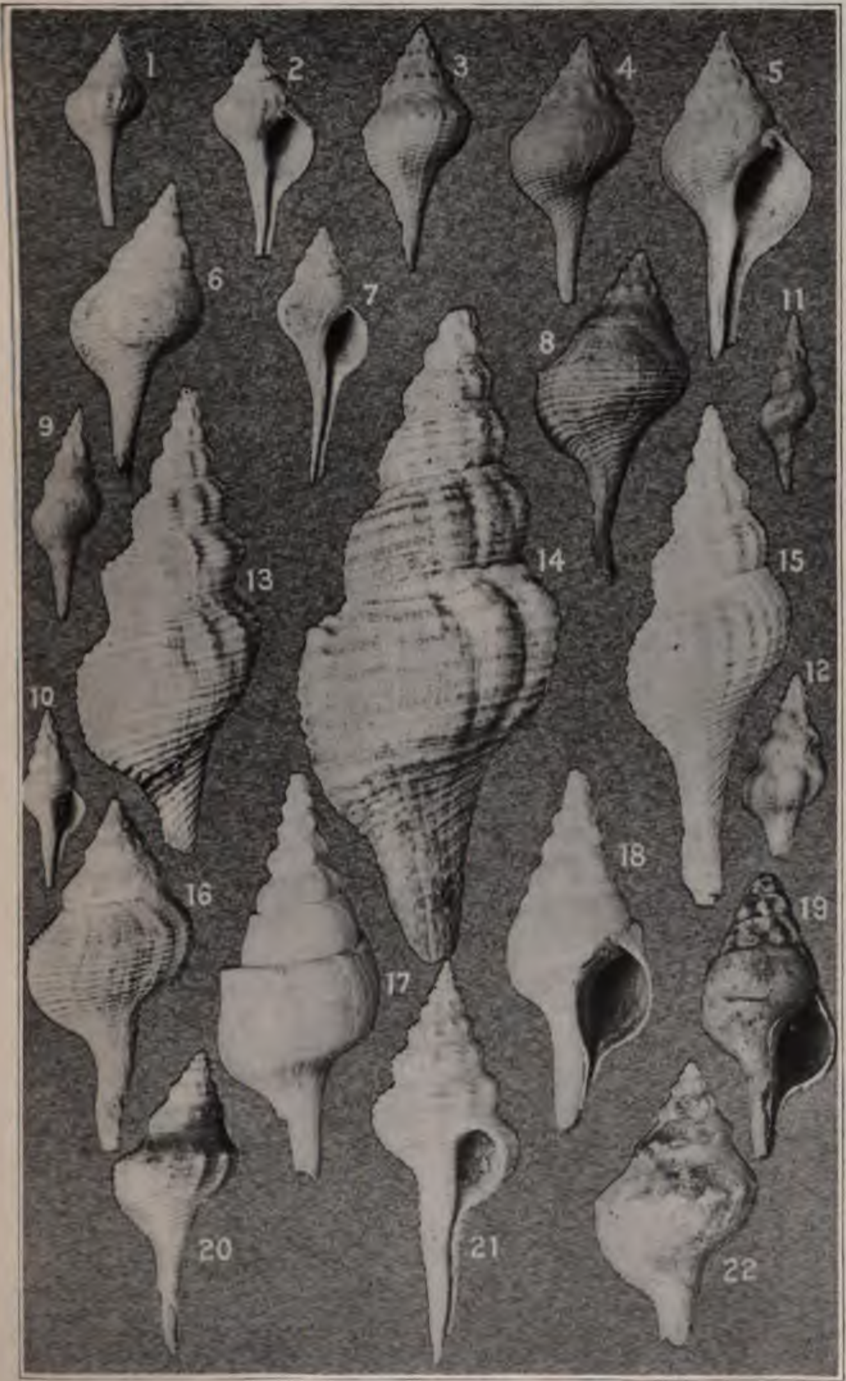


TERTIARY AND RECENT SPECIES OF FUSUS.

PLATE VIII

(All the specimens are in the Collection of the Museum of Comparative Zoology at Cambridge. The illustrations are slightly reduced.)

	PAGE
Figs. 1–3. *Euthriofusus burdigalensis* var. *tuberculosus* (1321, 1321, 27802)	94
4 and 5. *Euthriofusus burdigalensis* var. *carinata* (1319)	94
6 and 7. *Euthriofusus burdigalensis*. typical (1322)	95
8. *Euthriofusus burdigalensis*. gerontic individual (27801)	95
9–12. *Fusus semirugosus*. showing variation (1226)	61
13. *Fusus clavatus* var. (1213)	57
14. *Fusus etruscus* (1214)	57
15. *Fusus clavatus*. typical (1213)	57
16. *Euthriofusus burdigalensis* var. *major* (27800), Leognon et Saucats.	95
17 and 18. *Clavilithes* (?) *humerosus*. Jackson, Miss. (27792)	129
19. *Clavilithes conjunctoides*. type. Brockenhurst beds, England (27794)	122
20. *Euthriofusus burdigalensis* var. *major* (27800), Leognon et Saucats.	95
21. *Heilprinia caloosaënsis* (27799)	87
22. *Euthriofusus burdigalensis* var. *major*, Vienna basin (1322)	95

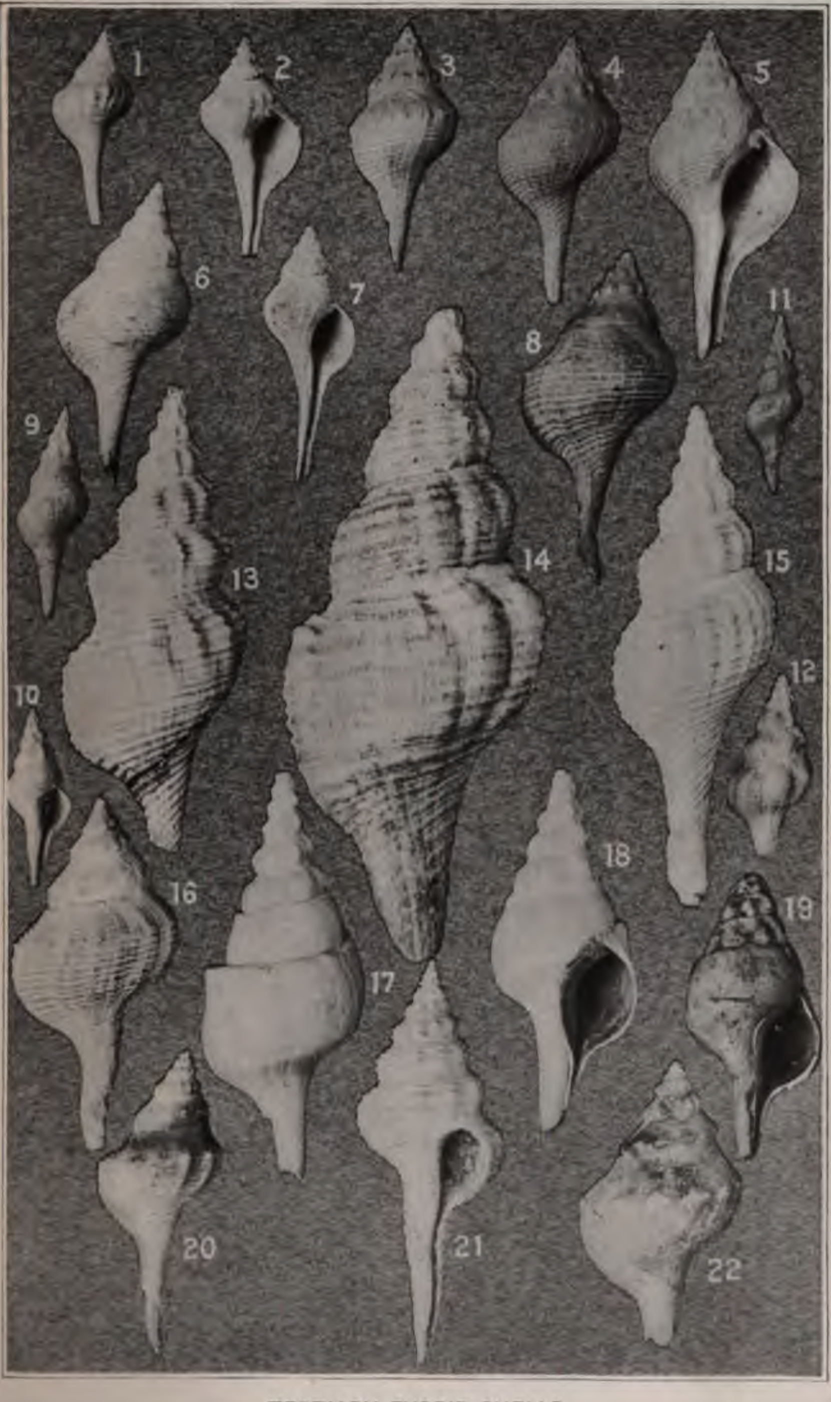


TERTIARY FUSOID SHELLS.

PLATE IX.

(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge. The illustrations are reduced.)

		Page
Figs. 1–7.	*Clavilithes rugosus*, typical forms of various ages (1380, 1380, 1374, 1125, 1125, 1125, 1380)	125
8.	*Clavilithes rugosus*, coarse variety with distant ribs (1413)	125
9–12.	*Rhopalithes rugoides*, typical forms showing protoconch and columellar plications (27776, 27777, 27776, 27779)	135
13.	*Cosmolithes uniplicatus* (1133)	142
14–17.	*Rhopalithes angulatus*, shells of various ages (1384 (3), 1385)	136
18 and 19.	*Rhopalithes* sp., young specimens, probably *R. noæ*, in the *subtuberculoides* stage (1131)	138
20.	*Cosmolithes uniplicatus* (27782)	142
21.	*Rhopalithes angulatus*, gerontic form (1382)	137
22.	*Rhopalithes clavelloides* (type), a phylogerontic type of the *R. angulatus* series (1393)	137
23 and 24.	*Rhopalithes tuberculoides* (27784, 27728, type)	138



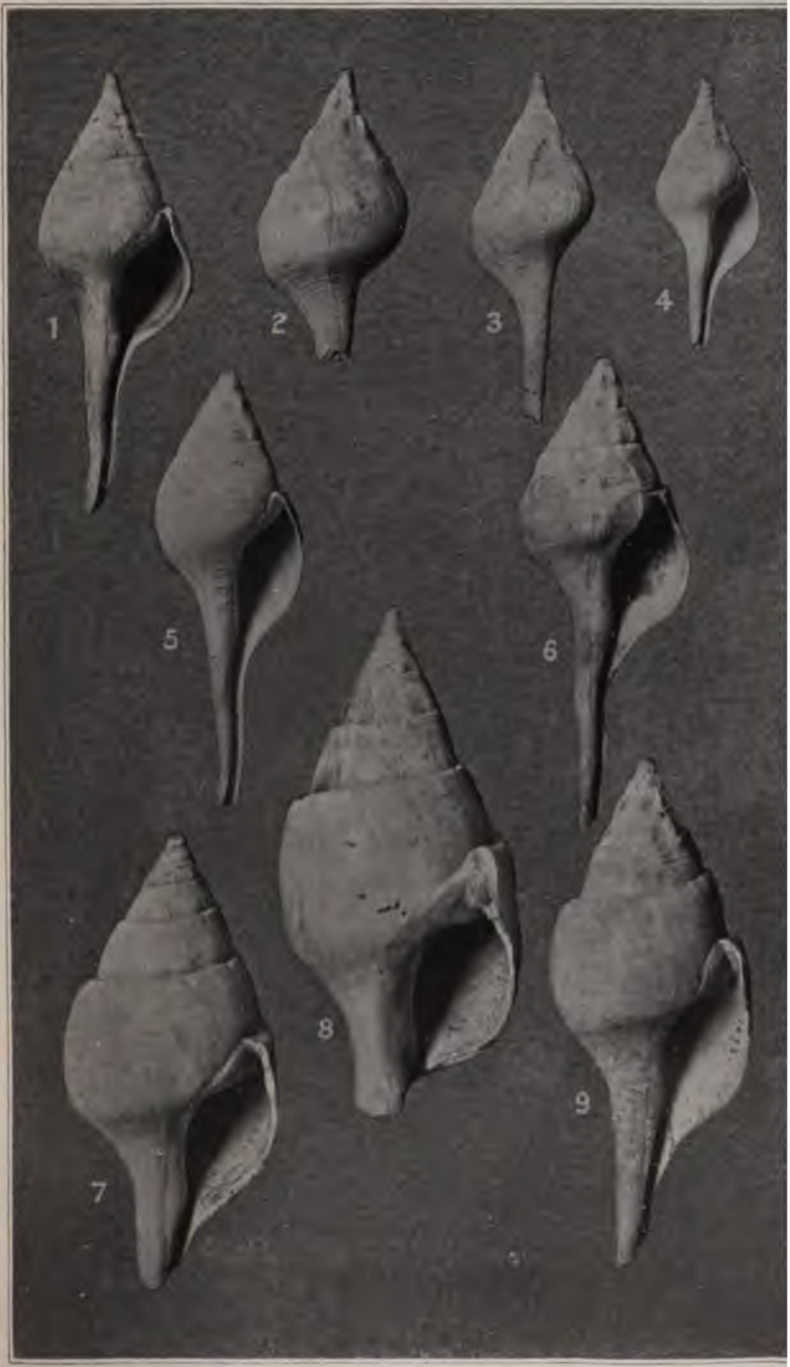
TERTIARY FUSOID SHELLS.

PLATE XI.

(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge. The illustrations are slightly reduced.)

PAGE.

Figs. 1–5. *Clavilithes conjunctus*, specimens of various ages, showing varieties (1067, 27764, 1068 (3)) 107
6. *Clavilithes dameriacensis*, an accelerated individual (27759) 101
7–9. *Clavilithes parisiensis*, three specimens showing variation (1073) .. 110



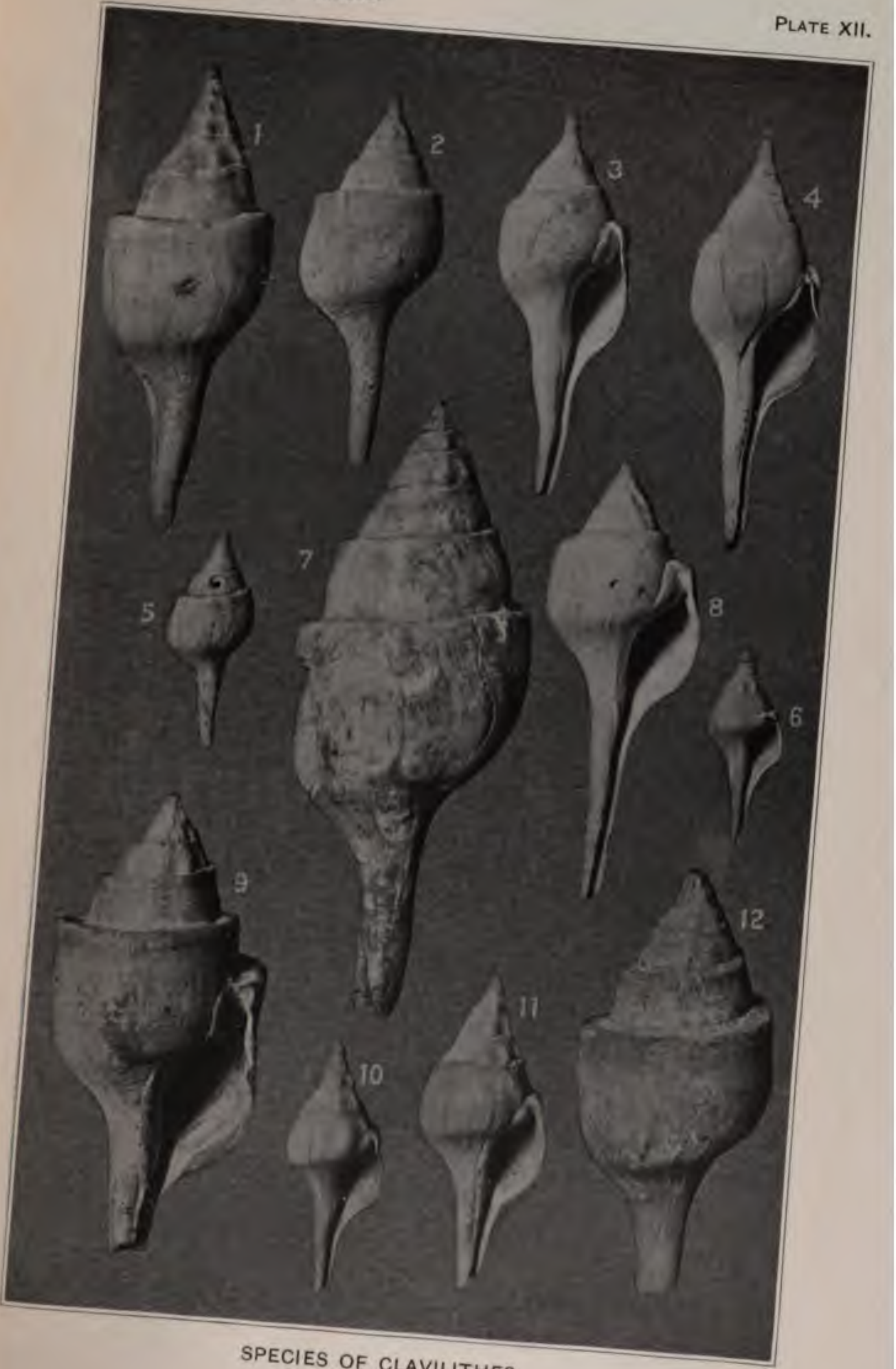
PARISIAN SPECIES OF CLAVILITHES.

PLATE XII.

(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge. The illustrations are slightly reduced.)

	PAGE
Figs. 1-3, 5-12. *Clavilithes subscalaris*, a series of specimens showing the principal varieties of this very variable species, as described in the text. Fig. 9 is the type. (1071, 27751, 27751, 27769, 27749, 1070, 27742, 27745, 1077, 1077, 27744)	114
4. *Clavilithes parisiensis* (1072)	110

PLATE XII.

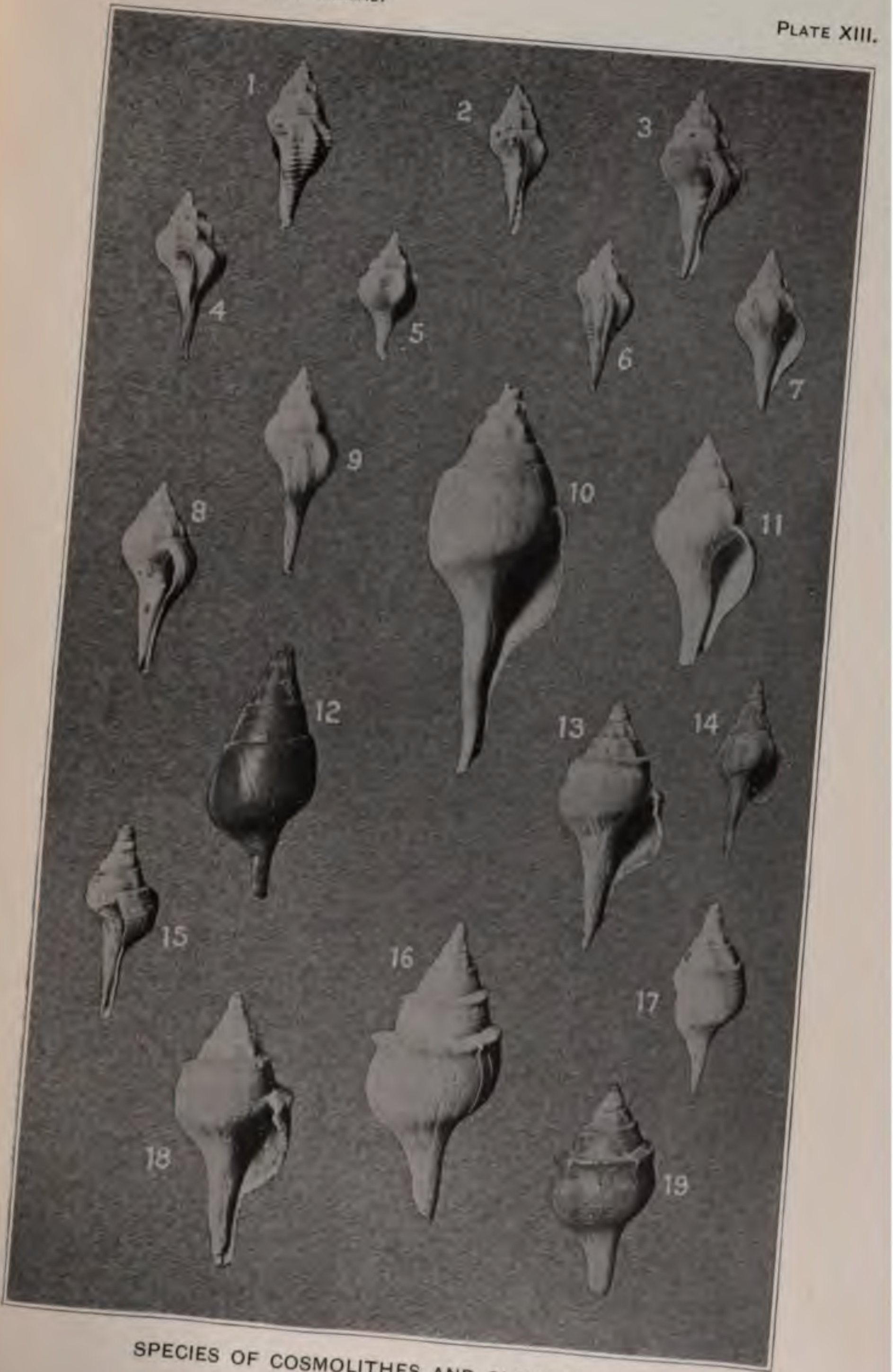


SPECIES OF CLAVILITHES.

PLATE XIII.

(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge. The illustrations are slightly reduced.)

	PAGE.
Figs. 1–3. *Cosmolithes uniplicatus* (1133, 1127, 1133)	142
4–7. *Cosmolithes subuniplicatus* (27772, 1124, 27793, 1124)	143
8, 9, 11. *Cosmolithes lævigatus* (1123)	144
10. *Clavilithes conjunctus,* senescent type (1105)	109
12. *Clavilithes egregius,* North German type (1114)	128
14. *Clavilithes deformis* (1137)	120
13, 15–19. *Clavilithes scalaris* of various ages (27786, 27786, 1086, 1083, 1086, 1088)	117



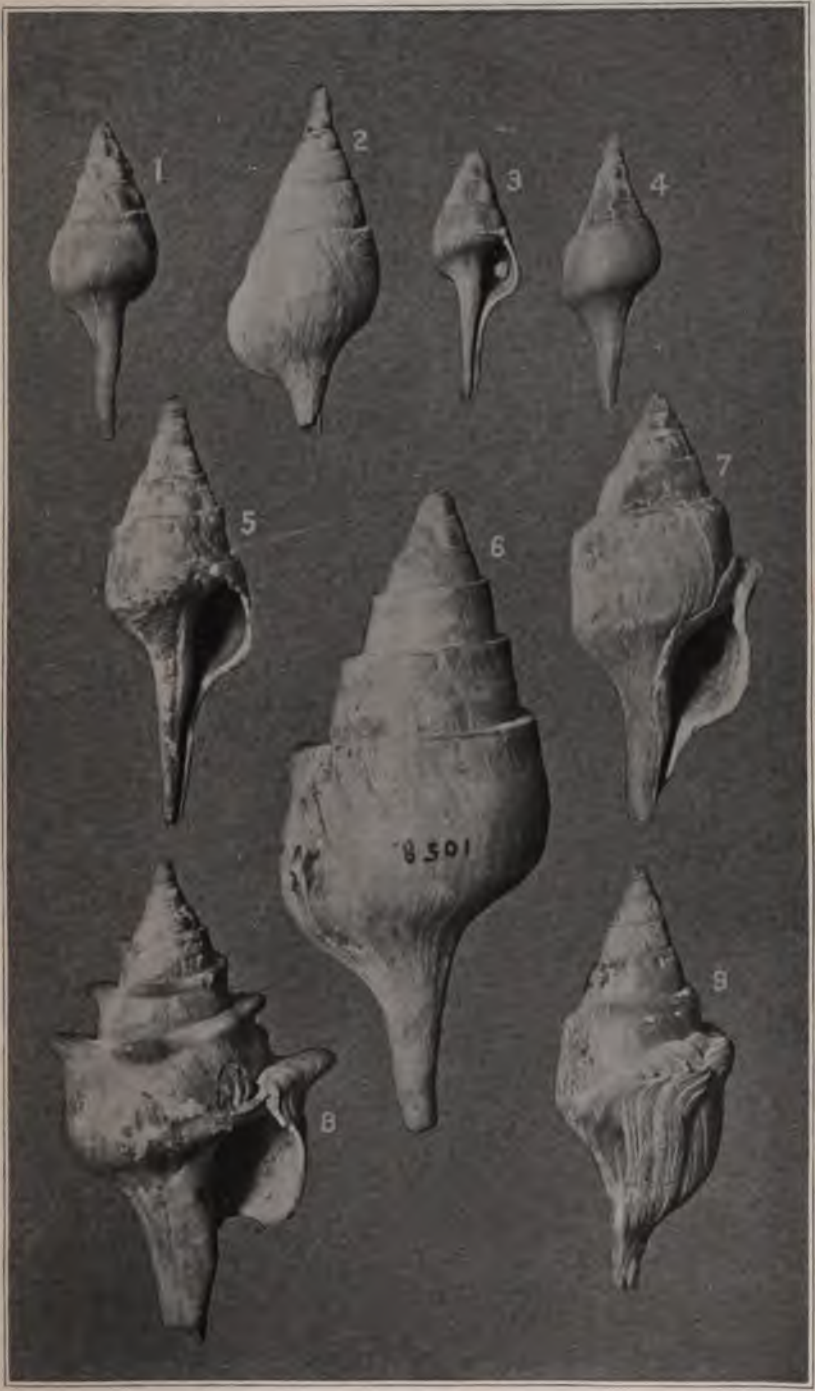
SPECIES OF COSMOLITHES AND CLAVILITHES.

PLATE XIV.

(All the specimens are in the collection of the **Museum of Comparative** Zoology at Cambridge.)

British Species of Clavilithes.

PAGE.
Figs. 1. *Clavilithes deformis,* young (27765) 120
2. *Clavilithes egregius,* British type (27793) 123
3 and 4. *Clavilithes deformis,* young like Fig. 1 (27765) 120
5 and 6. *Clavilithes solanderi,* a young and a submature specimen (Hampshire, 27765) (1058) 123
7. *Clavilithes parisiensis,* British form (27768) 121
8. *Clavilithes longævus* (1063) 126
9. *Clavilithes parisiensis,* British form, showing strong senile characters (27767) 121

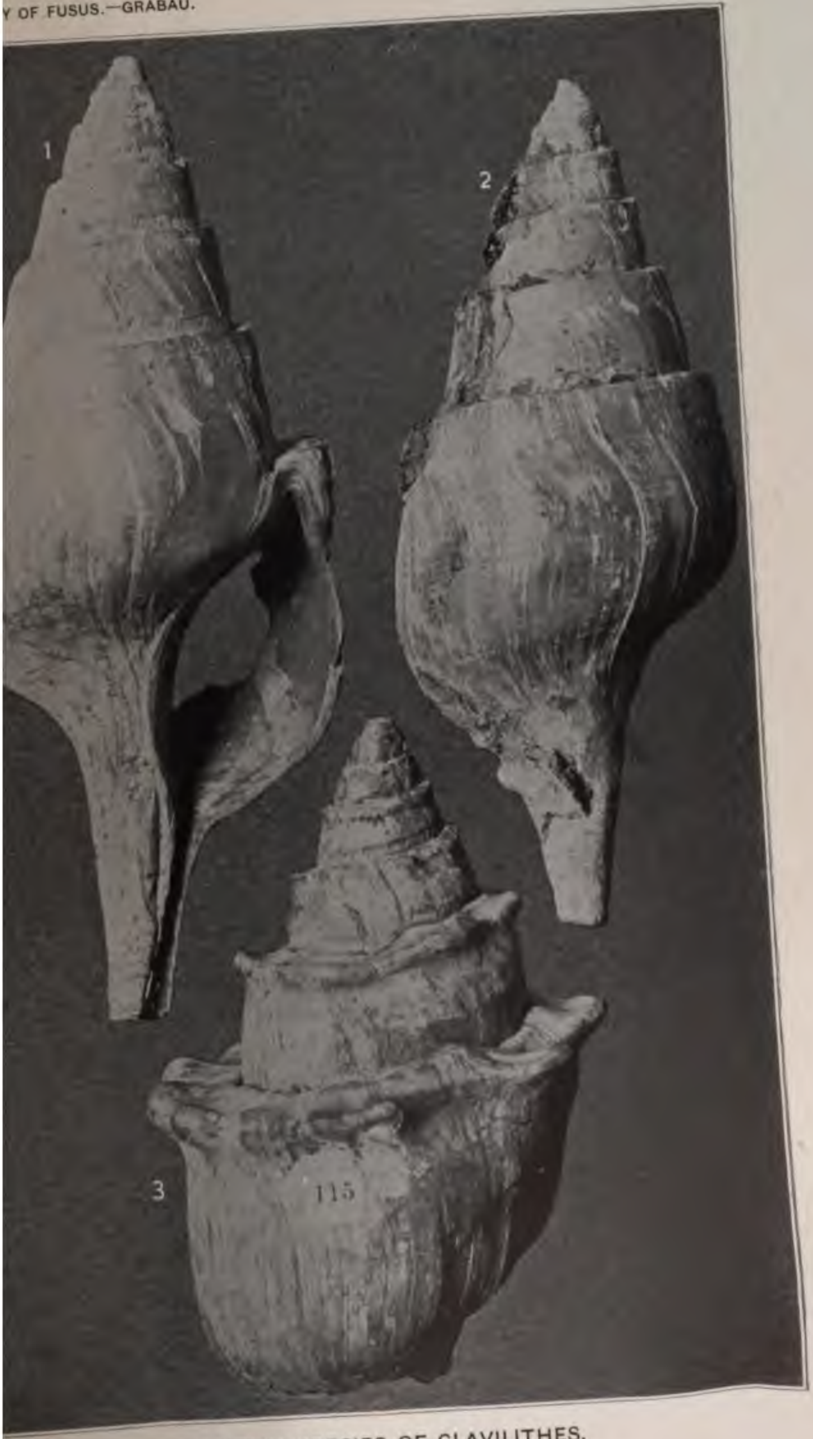


BRITISH SPECIES OF CLAVILITHES.

PLATE XV.

(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge.)

		PAGE.
Figs. 1–2.	*Clavilithes solanderi* (types 1061, 27762)	123
3.	*Clavilithes longævus*, a characteristic adult individual (27763)	126



BRITISH SPECIES OF CLAVILITHES.

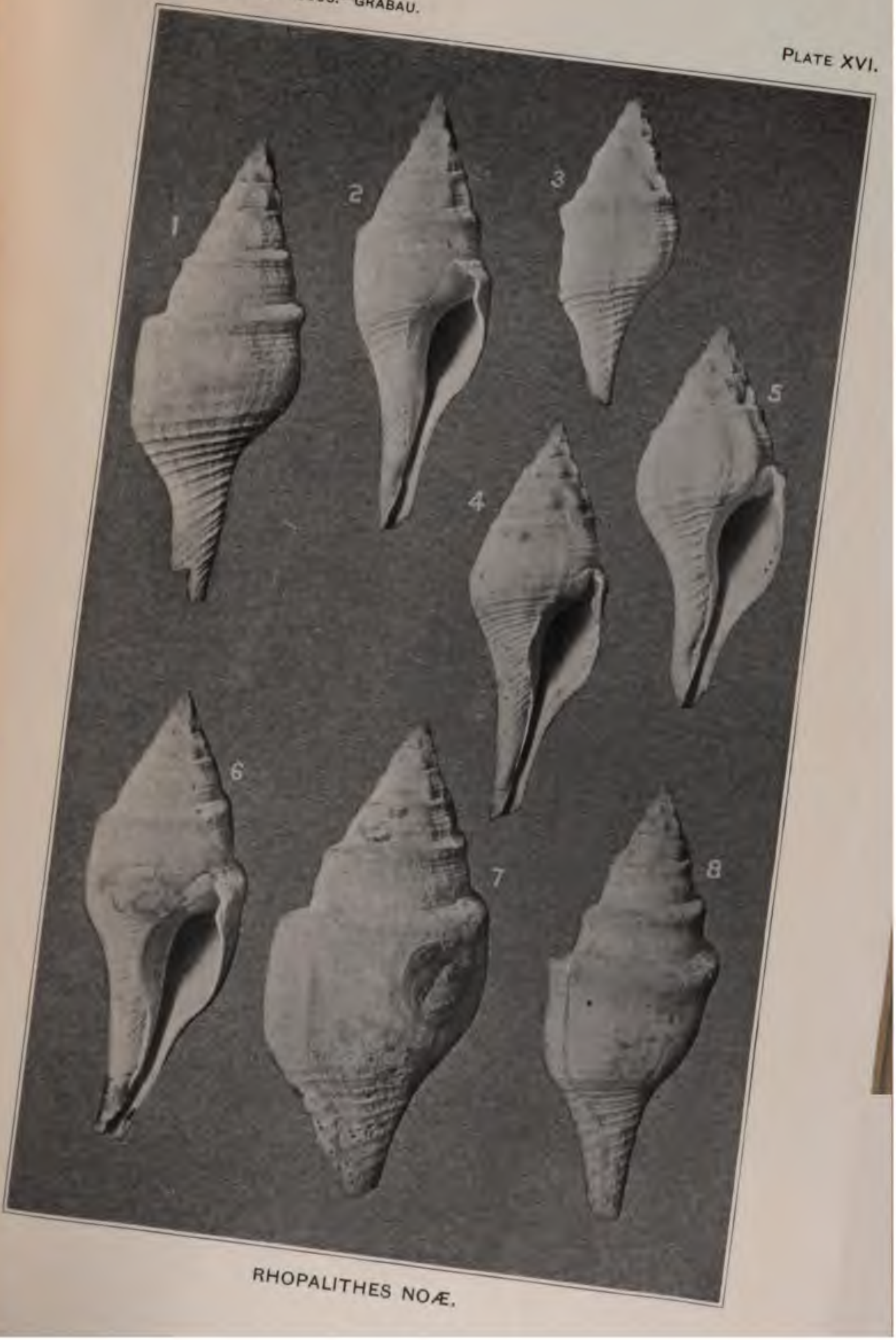
PLATE XVI.

(All the specimens are in the collection of the Museum of Comparative Zoology at Cambridge.)

PAGE

Figs. 1–8. *Rhopalithes noæ,* showing the varieties produced by greater or less acceleration (1109, 1101, 1107, 1110, 1011, ——, 1108, 1108)…. 139

PLATE XVI.



RHOPALITHES NOÆ.

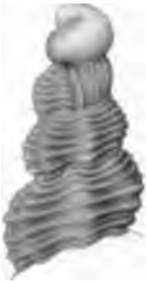
PLATE XVII.

Protoconch and Early Conch Whorls of Fusoid Shells.

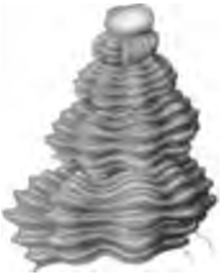
(Drawn by Miss Elvira Wood, U. S. G. S., Washington, D. C., formerly Instructor in Palæontology Massachusetts Institute of Technology.)

(M. C. Z., Museum of Comparative Zoology, Cambridge; Acad. Sci., Museum of the Academy of Sciences, Philadelphia; Nat. Mus., National Museum, Smithsonian Institution, Washington, D. C.)

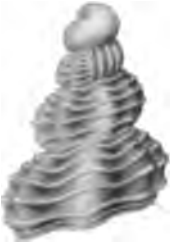
		PAGE.
Figs. 1.	***Fusus turriculus***, specimen, fig. 1, pl. II, showing tpical ***Fusus protoconch*** (M. C. Z. 33, × 10)	21
2.	***Fusus longirostris***, Pliocene (M. C. Z. 1213, × 10)	52
3.	***Fusus longirostris***, accelerated type. The first whorl of the protoconch is restored. The second shows numerous crowded riblets (B. S. 5134, × 10)	52
4.	***Fusus bredæ***. Protoconch and early whorls of specimen, fig. 8, pl. IV. The varix and riblets of the final portion of the protoconch are shown (M. C. Z. 1452, × 10)	60
5.	*Levifusus? harrisi* Grabau (Am. Nat., Vol. XXXVII, p. 527), showing the Fulguroid protoconch of the type. Lower Claiborne, Texas (Acad. Sci. 6959, × 16)	86
6.	*Fulgurofusus quercollis*, showing the Fulguroid protoconch and nepionic stage (Acad. Sci. 9019, × 16)	86
7.	*Levifusus trabeatus*, showing a protoconch analogous to that of *Falsifusus* (Acad. Sci. 6955, × 16)	2
8.	*Latirofusus ? interstriatus* (Heilprin), showing the *Falsifusus* type of protoconch (Acad. Sci. 6847, × 16)	2
9.	*Falsifusus meyeri*, the apical whorls enlarged, showing the Pleurotomoid protoconch (Nat. Mus. 129562, × 16)	81



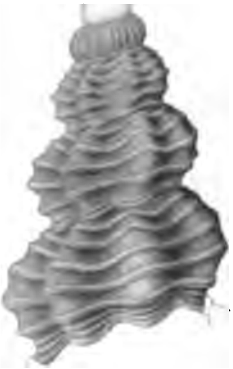
1



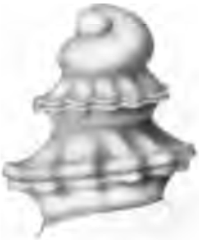
4



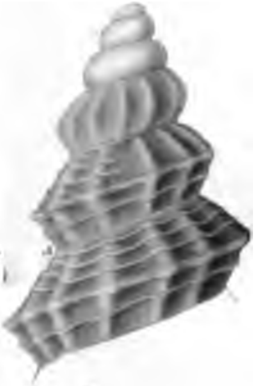
2



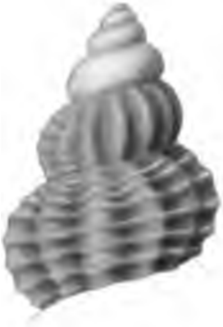
3



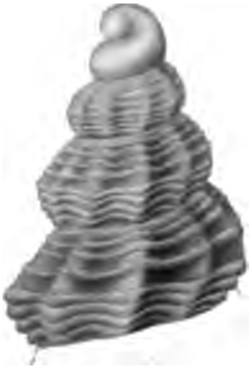
6



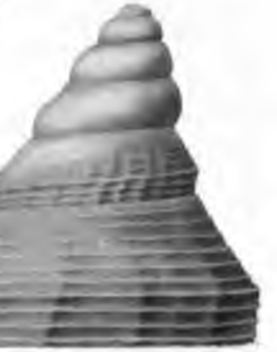
9



8



5



7

PROTOCONCHS AND EARLY CONCH WHORLS OF FUSOID SHELLS.

HELIOTYPE CO., BOSTON.

Stanford University Library
NOV
15
1904

SMITHSONIAN MISCELLANEOUS COLLECTIONS.
PART OF VOL. XLIV.

A SELECT
BIBLIOGRAPHY
OF
CHEMISTRY
1492-1902.

BY
HENRY CARRINGTON BOLTON.

SECOND SUPPLEMENT.

(1440.)

CITY OF WASHINGTON:
PUBLISHED BY THE SMITHSONIAN INSTITUTION.
1904.

SMITHSONIAN MISCELLANEOUS COLLECTIONS.
PART OF VOL. XLIV.

A SELECT BIBLIOGRAPHY OF CHEMISTRY

1492-1902.

BY
HENRY CARRINGTON BOLTON.

SECOND SUPPLEMENT.

(1440.)

CITY OF WASHINGTON:
PUBLISHED BY THE SMITHSONIAN INSTITUTION.
1904.

WASHINGTON, D. C.
JUDD & DETWEILER, PRINTERS
1904

PREFACE.

The Select Bibliography of Chemistry, 1492–1892, was published in 1893; the First Supplement, published in 1899, brought the literature down to the close of the year 1897. The present work, constituting the Second Supplement, continues the subject five years later, to the close of the year 1902; in it are preserved the same subdivisions adopted in the main work, and it includes additions to Section VIII, Academic Dissertations, which was published separately in 1901. To summarize, the present work contains titles of books published between 1898 and 1902, both inclusive, under the following heads:

I. Bibliography.
II. Dictionaries.
III. History.
IV. Biography.
V. Chemistry, Pure and Applied.
VI. Alchemical Literature in the 19th Century.
VII. Periodicals.
VIII. Academic Dissertations.

No attempt has been made to *index* books and periodicals, as this is accomplished in the International Catalogue of Scientific Literature, directed by the Royal Society, London, and that undertaking is not duplicated in the present work.

HENRY CARRINGTON BOLTON.

Washington, D. C.,
February 27, 1903.

[Note.—Doctor Bolton died November 19, 1903, while this publication was in press, and most of the proofreading, as well as the preparation of the index, was done by Mr. Axel Moth, of the New York Public Library.]

A SELECT BIBLIOGRAPHY OF CHEMISTRY

1492-1902.

SECOND SUPPLEMENT.

SECTION I.

BIBLIOGRAPHY.

ADDRESSBUCH DER CHEMISCHEN UND VERWANDTEN INDUSTRIEN VON OESTERREICH-UNGARN. Herausgegeben von der Abtheilung für Chemie und Physik des Niederösterreichischen Gewerbe-Vereins. Leipzig, 1898. 8vo.

BIEDERMANN'S CENTRALBLATT FÜR AGRICULTURCHEMIE UND RATIONELLEN LANDWIRTHSCHAFTSBETRIEB. General-Register zu Band I-XXV: Jahrgang 1872-1896, zusammengestellt von K. Wedemeyer. Leipzig, 1901. 8vo.

BOLLETTINO DI BIBLIOGRAFIA E STORIA DELLE SCIENZE MATEMATICHE PUBBLICATO PER CURA DI GINO LORIA. Torino, 1898.

BOLTON, HENRY CARRINGTON.

A Select Bibliography of Chemistry, 1492-1897. *First Supplement.* Smithsonian Miscellaneous Collections, No. 1170. City of Washington, 1899. Pp. x-489. 8vo.

BOLTON, HENRY CARRINGTON.

A Select Bibliography of Chemistry, 1492-1897. *Section VIII. Academic Dissertations.* Smithsonian Miscellaneous Collections, 1253. City of Washington, 1901. Pp. IV-534.

BREARLEY, HARRY.

A Bibliography of Steel-Works Analysis. Chem. News, vol. 80, p. 233 *et seq.* (November-December, 1899). *See, in Section V*, Brearley, Harry, and Fred Ibbotson. The Analysis of Steel-Works Materials.

BULLETIN DE LA SOCIÉTÉ CHIMIQUE DE PARIS. Tables des années 1889 à 1898 dressées par Th. Schneider. Paris, 1900–1901. Two parts. 8vo.

CATALOGUE MENSUEL DES THÈSES SOUTENUES DEVANT LES UNIVERSITÉS DE MONTPELLIER ET DE TOULOUSE. Montpellier, Octobre, 1898; Juin, 1899.

Continued under the title:

CATALOGUE MENSUEL DES THÈSES SOUTENUES DEVANT LES UNIVERSITÉS FRANÇAISES. Montpellier, July, 1899.

CHEMICAL MANUFACTURER'S DIRECTORY OF ENGLAND, WALES, SCOTLAND, SOME FIRMS IN IRELAND, 1900. London, 1900. 8vo.

[The same] for 1902. London, 1902.

CHEMICAL SOCIETY [OF LONDON].

A Catalogue of the Library of the Chemical Society, arranged according to authors, with a subject-index. [By Robert Steele.] London, 1903. 8vo.

Collective Index of the Transactions, Proceedings, and Abstracts, 1883–1892. By Margaret D. Dougal. London, *n. d.* [1898]. 2 vols. 8vo. I, pp. xv–471; II, pp. 1147.

CHEMISCH-TECHNISCHES REPERTORIUM. Jacobsen, E. Siebente General-Register zu Jahrgang 31–35 (1892–1896). Berlin, 1898. 8vo.

CHEMISCHES CENTRALBLATT.

General-Register über die fünf Jahrgänge des C. C., 1897–1901 (Autoren- und Sach Register; Register der Patentnummern) Bearbeitet von Rudolf Arendt. Berlin, 1902.

DOAN, MARTHA.

Index to the Literature of Thallium, 1861–1896. By Martha Doan. City of Washington, published by the Smithsonian Institution. 1899. 26 pp. 8vo

Smithsonian Miscellaneous Collections, vol. XLI (Number 1171).

GARÇON, JULES.
Répertoire géneral ou Dictionnaire méthodique de bibliographie des industries tinctoriales et des industries annexes depuis les origines jusqu' a la fin de l'année, 1896. Technologie et chimie.
Tome I. Introduction et avertissement géneral. Notice sur les sources bibliographiques du dictionnaire. Tables.
Tome II. Accidents de fabrications—Kermès.
Tome III. Laboratoire—Zinc. Paris, 1900–1901. Roy. 8vo.

GAZZETTA CHIMICA ITALIANA. Indice generale dei volumi 1–20 (Anni 1871–1890). Palermo, 1898. 8vo.

GLINZER, LANGFURTH, und VOIGTLÄNDER.
Sammelkatalog der in Hamburger öffentlichen Bibliotheken vorhandenen Litteratur aus der Chemie und aus verwandten Wissenschaften. Hamburg, 1901. 108 pp. 8vo.

HOWE, JAS. LEWIS.
Bibliography of the Metals of the Platinum Group. Platinum, Palladium, Iridium, Rhodium, Osmium, Ruthenium, 1748–1896. Smithsonian Miscellaneous Collections, No. 1084. City of Washington, 1897. 318 pp. 8vo.

INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE. First Annual Issue. D. Chemistry. London, 1902 (June)—January, 1903. 2 vols, 8vo.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER CHEMIE. General-Register zu den Jahrgängen 1877 bis 1886. Three parts in five. Braunschweig, 1897–1899. 8vo.

JAHRESBERICHT ÜBER DIE UNTERSUCHUNG UND FORTSCHRITTE AUF DEM GESAMMTGEBIETE DER ZUCKERFABRIKATION. Alphabetischer Sachregister zur Jahrg. 1–40 (1861–1900). Braunschweig, 1901. 8vo. Ill.

JOURNAL (THE) OF THE AMERICAN CHEMICAL SOCIETY. General Index to the first twenty volumes, 1879–1898, and to the Proceedings, 1877–1879. Easton, Pa., 1902.

JOURNAL OF THE SOCIETY OF CHEMICAL INDUSTRY. Collective Index from 1882 to 1895. Vols. I to XIV. Compiled by F. W. Renaut. London, 1899. 4to.

Krupsky, Al. Ker.

Russkaya chast khimicheskoy bibliographii. St. Peterburg, 1900. 62 pp. 4to.

Published by the Imperial Academy of Sciences, St. Petersburg. An excerpt from Bolton's Select Bibliography of Chemistry.

Ludwig, Anton.

Führer durch die gesammte Calciumcarbid- und Acetylen-Litteratur. Bibliographie der auf diesen Gebieten bisher erschienenen Bücher, Journale, Aufsätze in Zeitschriften, Abhandlungen und wichtigsten Patentschriften. Herausgegeben unter Mitwirkung von L. Ludwig. Berlin, 1899. 8vo.

Mathews, J. A.

Review and Bibliography of the Metallic Carbides. Smithsonian Miscellaneous Collections, No. 1090. City of Washington, 1898. 8vo. 32 pp.

Nederlandsch Tijdschrift voor Pharmacie, Chemie en Toxicologie. Tienjaarlijksche Inhoudsopgave benevens Register van Auteurs (1889–1898). s'Gravenhage, 1899. IV–89 pp. 8vo.

Palmaer, K. Vilh.

Förteckning på arbeten rörande ammoniakaliska föreningar af trevärdig krom, trevärdig kobalt, samt rhodium och iridium. 1871—April, 1895.

Contained in:

Om Iridiums ammoniakaliska Föreningar. Akademisk Afhandling af K. V. P. Upsala, 1895. Pp. 119–122. [68 titles.]

Patent Office [London] Series of Catalogues.

Subject List of the Works on Chemistry and Chemical Technology in the Library of the Patent Office. Patent Office Library Series, No. 6; Bibliographical Series, No. 3. London, 1901. Pp. 105. 32mo.

Subject List of Works on Certain Chemical Industries, including destructive distillation, mineral oils and waxes, gaslighting, acetylene; oils, fats, soaps, candles, and perfumery; paints, varnishes, gums, resins; paper and leather industries, in the Library of the Patent Office. Patent Office Library Series, No. 7; Bibliographical Series, No. 4. London, 1901. Pp. 100. 32mo.

PATENT OFFICE [LONDON] SERIES OF CATALOGUES. [Cont'd.]

SUBJECT LIST of Works on Domestic Economy, Foods, and Beverages, including the culture of cacao, coffee, barley, hops, sugar, tea, and the grape, in the Library of the Patent Office. London, 1902. Patent Office Library Series, No. 9; Bibliographical Series, No. 6. Pp. 136. 32mo.

SUBJECT LIST of Works on the Textile Industries and Wearing Apparel, including the culture and chemical technology of textile fibres, in the Library of the Patent Office. London, 1902. Pp. 128. 32mo.

SUBJECT LIST of Works on General Science, Physics, Sound, Music, Light, Microscopy, and Philosophical Instruments, in the Library of the Patent Office. London, 1903. Pp. 183. 32mo.

ROTHSCHILD, H. DE.

Bibliographia lactaria. Bibliographie générale des travaux parus sur le lait et l'allaitement jusqu' en 1899. Paris, 1900.

TALBOT, HENRY P., and JOHN W. BROWN.

A Bibliography of the Analytical Chemistry of Manganese. City of Washington, 1902. 8vo.

Smithsonian Miscellaneous Collections, 1313.

TUCKERMAN, ALFRED.

Index to the Literature of the Spectroscope (1887–1900, both inclusive). [Continuation of the previous index by the same author published in 1888.] Washington City, 1902. 8vo.

Smithsonian Miscellaneous Collections, 1312

ZEITSCHRIFT FÜR DEN PHYSIKALISCHEN UND CHEMISCHEN UNTERRICHT. General-Register für Jahrgang I–X (1887–1897), bearbeitet von O. Ohmann. Berlin, 1898. 4to.

ZEITSCHRIFT FÜR PHYSIKALISCHE CHEMIE, STÖCHIOMETRIE UND VERWANDSCHAFTSLEHRE. Herausgegeben von W. Ostwald und J. H. van't Hoff. Namen- und Sach-Register über Band I–XXV bearbeitet von T. Paul. Leipzig, 1900. 8vo.

SECTION II.

DICTIONARIES AND TABLES.

Bayley, Thomas.

A Pocket-book for Chemists, Chemical Manufactures, Metallurgists, Dyers, Distillers, Brewers, Sugar Refiners, Photographers, Students, etc. Seventh edition, revised and enlarged. London, 1900. 32mo.

Bersch, J.

Lexikon der Farbentechnik. Handbuch der Farbenfabrikation, Färberei, Bleicherei und Zeugdruckerei. Wien, 1902.

Billon, F.

Petite encyclopédie pratique de chimie industrielle. Paris, 1898–1902. 30 vols., 16 mo.

Carnoy, H.

Dictionnaire biographique des membres des sociétés savantes. Paris, 1899.

This comprises only those members "en province."

Castell-Evans, John.

Physico-Chemical Tables, for the use of Analysts, Physicists, Chemical Manufacturers, and Scientific Chemists. London, 1902. 2 vols., 8vo.

Cesaris, P.

Nuovo dizionario di chimica, farmacia, materia medica e scienze affini, coll' aggiunta di un formulario terapeutico e dei soccorsi d'urgenza nei casi di veneficio. Seconda edizione. Lodi, 1901. 8vo.

Cremer, J. H., and G. A. Bicknell.

Chemical and Metallurgical Handbook. Containing tables, formulas, and information for the use of Chemists, Metallurgists, and Mining Engineers. Second edition, enlarged. Cleveland, 1898. 8vo.

DANIEL, J.
Dictionnaire des matières explosives. Préface de M. Berthelot. Paris, 1902. 8vo. Ill.

FREMY, EDMONDE.
Encyclopédie chimique. Vol. III, part 17. Platine et métaux qui l'accompagment. Fascicule 1. Osmium et Ruthenium, par A. Joly et M. Vézes. Paris, 1899. 8vo. Fascicule 2. Palladium, Iridium, Rhodium, par E. Leidié. Paris, 1901.

ENCYCLOPÉDIE CHIMIQUE. Table alphabétique des matierès, par Chastaing. Paris, 1899. 8vo.

GARANCE, A. M.
Dictionary (A) of Perfumes used in Soap Making. London and Glasgow, 1898.

GARÇON, JULES.
Encyclopédie universelle des industries tinctoriales. Paris, 1899. 8vo.
In progress.

GIMBEL, A., und ALMENRÄDER, K.
Chemische Aequivalenztabellen für die Praxis zur schnellen Ermittelung der Beziehungen zwischen Ausgangsmaterial und Product für Chemiker, Techniker und Fabrikanten. Hannover, 1901. 8vo.

GUARESCHI, ICILIO.
Nuova enciclopedia di chimica scientifica, tecnologica ed industriale, colle applicazioni a tutte le industrie chimiche e manufatturiere, alla medicina, alla farmacia, all' igiene, alla mineralogia, all' agicoltura, alla bromatologia, alla biologia, ecc. Diretta da I. G. Torino, 1899. 4to.
In progress.

HANDWÖRTERBUCH, (NEUES) DER CHEMIE. Auf Grundlage des von Liebig, Poggendorff und Wöhler, Kolbe und Fehling herausgegebenen Handwörterbuchs der reinen und angewandten Chemie bearbeitet und redigirt von H. von Fehling, fortgesetzt von C. Hell und C. Häussermann. Braunschweig, 1871.
In progress.

HEYNE, P.
Praktisches Wörterbuch der Elektrotechnik und Chemie in Deutscher, Englischer und Spanischer Sprache. Mit besonderer Berücksichtigung der modernen Maschinentechnik, Giesserei und Metallurgie. Vol. I. Deutsch, Englisch, Spanisch. Dresden, 1898. 8vo. Vol. II, 1899; vol. III, 1900.

Hurst, George H.
Dictionary of Chemicals and Raw Products used in the manufacture of paints, colors, varnishes, and allied preparations. London, 1901.

Küster, F. W.
Logarithmische Rechentafeln für Chemiker, für den Gebrauch im Unterrichtslaboratorium und in der Praxis berechnet und mit Erlauterungen vorsehen. Dritte, durchgesehene und ergänzte Auflage. Leipzig, 1902. 12mo.

Laboulaye, Ch.
Dictionnaire des arts et manufactures et de l'agriculture. Septième edition. Paris, 1900. 5 vols., 4to.

Léauté, H., Editor.
Encyclopédie scientifique des Aide-Mémoire. 305 vols., 8vo. Paris, 1902.
See following names in Section V:

Ariès, E. Chaleur et énergie
Thermodynamique des systèmes homogènes.
Astruc, H. Le vin.
Barillot, Ernest. La distillation des bois.
Baume-Pluvinel, A. de la. La théorie des procédés photographiques.
Berthelot, M. Traité pratique de calorimétrie chimique.
Boursault, Henri. Recherches des eaux potables et industrielles.
Gautier, H. Essais d'or et d'argent.
Guichard, P. Analyse chimique et purification des eaux potables.
La quèstion de l'eau potable devant les Municipalités.
Guillet, Leon. L'industrie des acides minéraux.
Halphen, G. Analyse des matières grasse.
Hébert, A. Examen sommaire des boissons falsifiées.
Henriet, H. Les gaz de l'atmosphère.
Jacquet, Louis. La fabrication des eaux de vie.
Jaubert, Georges F. L'industrie du goudron de houille.
L'industrie des matières colorantes azoiques.
Les parfums comestibles.
Produits aromatiques artificiels et naturels.
Les matières odorantes artificielles.
La garance et l'indigo.

LEAUTÉ, H. [Cont'd.]

- **LABBÉ, HENRI.** Essai des huilles essentielles.
- **LANGLOIS, P.** Le lait.
- **LEFÈVRE, JULIEN.** La spectroscopie.
  - La spectrométrie.
  - La liquefaction des gaz et ses applications.
  - L'éclairage aux gaz, aux huiles et aux acides gras.
- **LINDET, L.** La bière.
- **MAGNIER, DE LA SOURCE.** Analyse des vins.
- **MINET, ADOLPHE.** L'electrométallurgie.
  - L'electrochimie.
  - Les théories de l'electrolyse.
  - Analyses electrolytiques.
  - Galvanoplastie et Galvanostégie.
- **NAUDIN, LAURENT.** Fabrication des vernis.
- **NIEWENGLOWSKI, G. H.** Chimie des manipulations photographiques.
- **POZZI-ESCOT, E.** Analyse chimique qualitative.
  - Analyse microchimique et spectroscopique.
  - Les diastases.
  - Analyse des gaz.
- **PRUDHOMME, M.** Teinture et impression.
- **ROCQUES, X.** Le cidre.
  - Analyse des alcools et des eaux de vie.
- **SIDERSKY, D.** Polarisation et Saccharimétrie.
  - Les constantes physico-chimiques.
- **SOREL, ERNEST.** La rectification de l'alcool.
  - La distillation.
- **THOMAS, V.** Les plantes tinctoriales.
  - Les matières colorantes naturelles.
  - Les phénomènes de dissolutions.

LEFÈVRE, J.

Dictionnaire de l'industrie. Matières premières, machines et appareils, méthodes de fabrication, procédés mécaniques, opérations chimiques, produits manufacturés. Paris, 1899. 8vo. Ill.

MARPMANN, G.

Handwörterbuch der chemischen Apparatenkunde und analytischen Technik, enthaltend eine genaue Beschreibung der seit den letzten Jahrzehnten in der chemisch-analytischen Litteratur bekannt gegebenen Apparate und Untersuchungsinstrumente mit Litteraturnachweis und Bezugsquellen. Leipzig, 1900. Roy. 8vo. Ill.

MEADE, RICHARD K.

The Chemists' Pocket Manual. A practical handbook containing tables, formulas, calculations, physical and analytical methods for the use of Chemists, Assayers, Metallurgists, Manufacturers, and Students. Easton, Pa., 1900.

PANAOTOVIC, J. P.

Chemisches Hilfsbuch. Atomgewichte und deren Multipla, Umrechnungsfaktoren und massanalytischen Constanten. Berlin, 1900. 8vo.

RAWSON, CHR., GARDNER, W. M., and LAYCOCK, W. F.

Dictionary of Dyes, Mordants, and other compounds used in dyeing and calico-printing. London, 1901.

RICHTER, M. M.

Lexikon der Kohlenstoff-Verbindungen. Zweite Auflage der "Tabellen der Kohlenstoff-Verbindungen nach deren empirischer Zusammenstellung geordnet." Hamburg, 1899–1900. 2 vols. 8vo. Supplement I, 1901.

SCHROEDER, G. und J. VON.

Wandtafeln für den Unterricht in der allgemeinen Chemie und chemischen Technologie. Fortgesetzt von A. Harpf und A. Schierl. Kassel, 1899–1902.

Colored tables in folio.

SCHULTZ, GUSTAV, und PAUL JULIUS.

Tabellarische Uebersicht der im Handel befindlichen künstlichen organischen Farbstoffe. Vierte umgearbeitete und stark vermehrte Auflage, herausgegeben von Gustav Schultz. Berlin, 1902.

SIDERSKY, D.

Les constantes physico-chimiques. Paris, 18—. 8vo. Ill.

Encyclopédie des aide mémoire.

TOMMASSI, D.

Formulaire physico-chimique. Recueil de tables, formules et renseignments pratiques à l'usage des chimistes, des ingénieurs et des industriels. Paris, 1898. 12mo.

VILLAVECCHIA, V.

Dizionario di merciologia e di chimica applicata alla conoscenza dei prodotti delle cave e miniere, del suolo e dell'industria, con speciale riguardo ai prodotti alimentari, chimici e farmaceutici. Con la collaborazione di G. Fabris e C. Hannau. Secunda edizione completamente riveduta ed aumentata. Genova, 1900–1902. 8vo.

VILLON, A. M., et GUICHARD, P.

Dictionnaire de chimie industrielle, contenant les applications de la chimie à l'industrie, à la métallurgie, à l'agriculture, à la pharmacie, etc. Paris, 1895–1902. 3 vols., sm. 4to. Ill.

WALDHEIM, M. VON.

Pharmaceutisches Lexikon. Ein Hilfs-und Nachschlagebuch für Apotheker, Aerzte, Chemiker und Naturkenner. Wien, 1899.

WATTS' DICTIONARY OF CHEMISTRY, revised and entirely rewritten. By M. M. Pattison Muir and H. Forster Morley, assisted by eminent contributors. London, New York and Bombay, 1898–1901. 4 vols., roy. 8vo.

WOY, R.

Rechenknecht für Chemiker. Breslau, 1899. 4to.

Printed on stout board and laquered.

WURTZ, A.

Dictionnaire de chimie pure et appliquée. Supplement II, publié sous la direction de C. Friedel. Paris. — vols., 1891.

WURTZ, A.

Dizionario di chimica pura ed applicata, contenenta la chimica organica ed inorganica, la chimica applicata all'industria, all'agricoltura, ed alle arte, la chimica fisica e la mineralogia. Milano, 1888–1902. 3 vols. in 7 parts, 8vo. Ill.

SECTION III.

HISTORY OF CHEMISTRY,

INCLUDING THE HISTORY OF ALCHEMY, PHARMACY, PHYSICS, PHOTOGRAPHY, TECHNOLOGY, AND TOXICOLOGY.

AHRENS, B.

Die Entwicklung der Chemie im 19. Jahrhundert. Vortrag. Stuttgart, 1900. 8vo.

AMERICAN CHEMICAL SOCIETY.

Twenty-fifth Anniversary of the American Chemical Society. New York City, April 12th and 13th, 1901. Supplement to the Journal of the A. C. S. Easton, Pa., 1902. pp. 168, 8vo.

ANDRÉ-PONTIER, L.

Histoire de la pharmacie. Origines ; moyen âge ; temps modernes. Paris, 1900. 8vo. Ill.

BECK, L.

Geschichte (Die) des Eisens in technischer und kulturgeschichtlicher Beziehung. Braunschweig. 8vo. Ill. Part IV, 1898. Part V, 1901.

BECKMANN, E., und T. PAUL.

Das neubegründete Laboratorium für angewandte Chemie an der Universität Leipzig. Berlin, 1899. 8vo. Ill.

BERENDES, J.

Geschichte der Pharmazie. Unter Mitwirkung angesehener Historiker und Fachgenossen herausgegeben. Leipzig, 1898. 8vo.

BERICHT ÜBER DIE CHEMISCHEN INDUSTRIEN AUF DER WELTAUSSTELLUNG ZU PARIS 1900. Herausgegeben von dem K. K. Oesterreichischen General-Commissariate. Wien, 1901. 4to.

BERTHELOT, M.

L'évolution générale des méthodes dans les industries chimiques. Revue générale des sciences, July 30, 1900.

BILLON, F.

Historia de la industria quimica. Traducida del Francés y adicionada con gran numero de notas y datos por J. Olmedilla y Puig. Madrid, 1898. 8vo.

BITTMANN, C.

Jacob Christian Schmeltzer und die Achard'sche Departements-Zuckerfabrik im St. Agnetenkloster zur Trier, 1811–'14. Gedenkblatt zur Hundertjahrfeier der Europäischen Rübenzuckerindustrie. Trier, 1902. 8vo. Portrait.

BLANCHET, A.

Essai sur l'histoire du papier et sa fabrication, Paris, 1900. 8vo. Ill.

BOLTON, HENRY CARRINGTON.

Chemical Societies of the Nineteenth Century. City of Washington, 1902. 15 p. 8vo.

Smithsonian Miscellaneous Collections, No. 1314.

Also: American Chemical Society, Twenty-fifth Anniversary of, *q. v.*; Chem. News, vol. 85, p. 220 *et seq.* (May 9, 1902).

Evolution of the Thermometer. Easton, Pa., 1900. Ill. 12mo.

Follies of Science at the Court of Rudolph II. Pharmaceutical Review. April, 1902–October, 1903. Ill.

Revival (The) of Alchemy. Annual Report Smithsonian Institution, 1898. Washington, D. C., 1899.

BORCHERS, W.

Die Elektrochemie und ihre weitere Interessensphäre auf der Weltausstellung in Paris, 1900. Halle, 1901.

BORIANI, L.

Introduzione alla storia della farmacia in Italia. Bologna, 1899. 8vo.

BRUNK, H.

History of the Commercial Manufacture of Artificial Indigo. [Translated from the French.] Chem. News, 86, 211. (October 31, 1902.)

CAJORI, F.

History (A) of Physics in its elementary branches, including the evolution of physical laboratories. New York, 1899. 8vo.

CLARKE, FRANK WIGGLESWORTH.
The Development of Chemistry. Presidential Address at the Philadelphia meeting of the American Chemical Society, December 30, 1901. Journal Amer. Chem. Soc. Vol. 24, p. 117. (February, 1902.)
Portrait.

COLIN, SÉBASTIEN.
Déclaration des abuz et tromperies que font les apoticaires, fort utile et necessaire à ung chacun studieux de sa santé. Composée par Maistre Lisset Benancio (Sébastien Colin). Nouvelle édition, revue corrigée et annotée par Paul Dorveaux. Paris, 1901.

COLSON, R.
Mémoires originaux des créateurs de la photographie, annotée et commentés par R. C. Paris, 1899. 8vo.

DAMMER, O.
Die Fortschritte der anorganischen Chemie in den Jahren 1892–1902. Stuttgart, 1902. 8vo.
This forms Vol. IV of Dammer's Handbuch der anorganischen Chemie.

DEL MAR, ALEXANDER.
A History of the Precious Metals from the earliest times to the present. Second edition, revised. New York, 1902. Roy. 8vo.

DRECKER.
Kurzer Abriss der Geschichte der Photographie. Aachen, 1902.

DUJARDIN, J.
Recherches rétrospectives sur l'art de la distillation. Historique de l'alcool, de l'alambic et de l'alcoométrie. Paris, 1900. 236 pp., 8vo. Ill.

DUHEM, P.
Tension (La) de dissociation avant H. Sainte Claire Deville. Les travaux de G. Aimé. Paris, 1899. 8vo.

DUTENS, LOUIS.
Of the Chemistry of the Ancients. Chapter V in An Inquiry into the Origin of the Discoveries attributed to the Moderns. Translated from the French. London, 1769.

ELLIS, CHARLES.
The Origin, Nature, and History of Wine. London, 1861.

ESCALES, R.
Bergbau, Hüttenwesen, Metallindustrie auf der Düsseldorfer Austellung. Chemische Plaudereien. München, 1902. 8vo.

FISCHER, E., und M. GUTH.
Der Neubau des ersten chemischen Instituts der Universität Berlin. Berlin, 1901. Fol.

FISCHER, E.
Eröffnungsfeier der neuen 1. Chemischen Instituts der Universität Berlin am 14 Juli, 1900. Berlin, 1900.

FISCHER, F.
Chemische Technologie auf den Universitäten und technischen Hochschulen Deutschlands. Braunschweig, 1898. 8vo.
Supplement to: Das Studium der technischen Chemie, etc., by the same author.

FORRER, R.
Kunst (Die) des Zeugdrucks vom Mittelalter bis zur Empirezeit. Nach Urkunden und Original-Drucken bearbeitet. Strassburg, 1898. 4to. Ill.

FRESENIUS, H.
Geschichte des chemischen Laboratoriums zu Wiesbaden während der zweiten 25 Jahre seines Bestehens. Wiesbaden, 1898. 8vo. Ill. Portrait.

GARÇON, J.
Histoire de la chimie en France. Découvertes et préparations; propriétés et applications; essai de tableaux résumés. Paris, 1900. 8vo.

GERLAND, E., und TRAUMÜLLER, F.
Geschichte der physikalischen Experimentirkunst. Leipzig, 1899. 8vo. Ill.

GESSMANN, G. W.
Geheimsymbole (Die) der Chemie und Medicin des Mittelalters. München, 1899. 8vo. Ill.

GESSMANN, GUSTAV W.
Kurze Entwicklungs-Geschichte der Alchemie. Das Reich des Uebersinnlichen. Geheimwissenschaftliche Studien, Nos. 3 and 4. München, 1902.

GOWLAND, W.

The Early Metallurgy of Copper, Tin and Iron in Europe, as illustrated by ancient remains and the primitive processes surviving in Japan. London, 1899.

GRECO, N. V.

Bosquejo de la historia general de la farmacia. Publicacion revisada y aprobada por J. A. Bocri. Buenos Aires, 1898. 8vo.

GRIESBACH, H.

Physikalisch-chemische Propaedeutik unter besonderer Berücksichtigung der medicinischen Wissenschaften und mit historischen und biographischen Angaben. Leipzig, 1898. 8vo. Ill.

GUARESCHI, J.

Storia della chimica. Parti I e II. Torino, 1901–1902. 4to, 2 portraits: Avogadro and Malaguti.

Supplement to: Annali di chimica medico-farmaceutica.

HARE, ROBERT.

See Youmans, W. J.

HENRIVAUX, J.

La verrerie à l'Exposition universelle de 1900. Paris, 1901. 8vo. Ill.

HENRY, JOSEPH.

See Youmans, W. J.

HEYDWEILER, A.

Entwicklung (Die) der Physik im 19. Jahrhundert. Berlin, 1900. 8vo.

[HISTORICAL AND BIOGRAPHICAL SOUVENIRS OF ENGLISH CHEMISTS.]

See Report of Banquet to Past Presidents of the Chemical Society of London. Chem. News, 78, 273. December 2, 1898.

HOEFER, FERDINAND.

Histoire de la physique et de la chimie depuis les temps les plus reculés jusqu' à nos jours. Troisième édition. Paris, 1900. 12mo. Ill.

HOFFMANN, FREDERICK.

A Retrospect of the Development of American Pharmacy, and the American Pharmaceutical Association. An address delivered at the Semi-Centennial Celebration of the American Pharmaceutical Association at Philadelphia, Pa., September 11, 1902. Pp. 45. 8vo. Ill. *n. p.*, *n. d.*

HORSIN-DÉON.

La sucrerie a l'Exposition universelle de 1900. Paris, 1902. 8vo. Ill.

HÜFNER, G.

Ueben den Ursprung, und die Berechtigung besonderer Lehrstühle für physiologische Chemie. Tübingen, 1899. 8vo.

KATALOG der Oesterreichischen Abtheilung der Pariser Weltausstellung 1900, herausgegeben von dem K. K. General-Commissariate: Chemische Industrie. Wien, 1900. 8vo. Ill.

KEPPELER, G.

Chemisches auf der Weltausstellung zu Paris im Jahre, 1900. Stuttgart, 1901. 8vo.

KONINCK, L. L. DE.

Historique de la méthode titrimétrique. Bull. de l'Assoc. Belge des Chimistes, vol. XV, pp. 28 and 73, Janvier–Février, 1901. Bruxelles, 1901. 8vo. 32 pp.

Reviewed in Chemical News November 1, 1901.

LADENBURG, A.

Entwicklung (Die) der Chemie in den letzten zwanzig Jahren. Stuttgart, 1900. 8vo.

Vorträge über die Entwicklungsgeschichte der Chemie von Lavoisier bis zur Gegenwart. Gleichzeitig dritte, vermehrte Auflage der "Entwicklungsgeschichte der Chemie in den letzten 100 Jahren." Braunschweig, 1902. 8vo.

Lectures on the History of the Development of Chemistry since the time of Lavoisier. Translated from the second German edition by Leonard Dobbin, with additions and corrections by the author. Edinburgh and London, 1900. pp. XVI–373. 12 mo.

LECLERC, G.

Histoire de la pharmacie à Lille de 1301 à l'an XI (1803); étude historique et critique. Lille, 1900. 8vo. Ill.

LÉGIER, C.

Histoire des origines de la fabrication du sucre en France. Paris, 1901. 8vo. Portrait. Ill.

LIPPMANN, E. O. VON.

Die Entwicklung der Deutschen Zucker-Industrie von 1850 bis 1900. Festschrift zum 50-jährigen Bestande des Vereins der Deutschen Zucker-Industrie. Berlin, 1900.

Zur Geschichte des Schiesspulvers und der älteren Feuerwaffen. Zeitschrift Naturwissenschaft. Stuttgart, 1899.

LLOYD, JOHN URI, [assisted by] SIGMUND WALDBOTT.

References to Capillarity to the end of the year 1900. Bulletin of the Lloyd Library of Botany, Pharmacy, and Materia Medica. Bulletin No. 4. Pharmacy Series No. 1. Cincinnati, Ohio, 1902.

LOEBE, R.

Beitrag zur Kenntnis der Zink- und Cadmiumcyanide. Berlin, 1902.

LOMMEL, EUGEN VON.

Die Entwickelung der Physik im neunzehnten Jahrhundert. München, 1898.

Dissertation.

LUNGE, G.

Zur Geschichte der Entstehung und Entwicklung der chemischen Industrien in der Schweiz. Zürich, 1901. 8vo.

MANN, C. R.

Histories and Bibliographies of Physics. In *Science*, N. S., vol. XVI, p. 1016 (December 26, 1902).

MELLMANN, P.

Die chemische Industrie auf der Pariser Weltausstellung 1900. Berlin, 1901. 4to.

MÉMOIRES ORIGINAUX DES CRÉATEURS DE LA PHOTOGRAPHIE. Nicéphore Niepce, Daguerre, Bayard, Talbot, Niepce de St. Victor, Poitevin, annotés et commentés par R. Colson. Paris, 1898. 8vo.

MEYER, ERNST VON

History (A) of Chemistry from the Earliest Times to the Present Day, being also an introduction to the study of the science. Translated with the Author's sanction by George McGowan. Second English edition, translated from the second German edition, with numerous additions and alterations. London, 1898.

MICHEL, C.

Geschichte des Bieres von der ältesten zeit bis zum Jahre 1900 mit Einschluss der einschlägigen Gesetze. Augsburg, 1901. Roy. 8vo.

MONOGRAPHIEN AUS DER GESCHICHTE DER CHEMIE. Leipzig. 8vo.

I. Die Einführung der Lavoisier'schen Theorie im Besonderen in Deutschland. Ueber den Anteil Lavoisier's an der Feststellung der das Wasser zusammensetzenden Gase. Von Georg W. A. Kahlbaum und August Hoffmann, 1897.

II. Die Entstehung der Dalton'schen Atomtheorie in neuer Beleuchtung. Henry E. Roscoe und A. Harden. Ins Deutsch übertragen von Georg W. A. Kahlbaum. 1898. Porträt.

III. Berzelius, Werden und Wachsen, 1779–1821. Von H. G. Söderbaum, 1899. Porträt.

IV and VI. Christian Friedrich Schönbein, 1799–1868. Ein Blatt zur Geschichte des 19 Jahrhundert. I Teil von Georg W. A. Kahlbaum. II Teil von G. W. A. K. und Ed. Schaer. 1899–1901. Portrait.

V. Justus von Liebig und Christian Friedrich Schönbein's Briefwechsel, 1853–1868. Herausgegeben von Georg W. A. Kahlbaum und Ed. Thon. 1900.

MUIR, MATTHEW MONCRIEFF PATTISON.

Story (The) of Alchemy and the beginnings of Chemistry. London and New York, 1902. 12mo.

NEUMANN, B.

Zur Geschichte des Weingeistes. Pharmaceut. Centralhalle. Berlin, 1900. 8vo.

OSTWALD, W.

Aeltere Geschichte der Lehre von den Berührungswirkungen. Leipzig, 1899. 4to.

Physikalisch-chemische (Das) Institut der Universität Leipzig und die Feier seiner Eröffnung am 3. Januar 1898. Leipzig, 1898. 8vo. Ill.

PANCIER, F.

Les progrès de la chimie. Amiens, 1900. 8vo.

PANSA, G.

La storia della chimica ed alcune note di filosofia naturale. Cassino, 1898. 8vo.

PETERS, H.

Aus pharmaceutischer Vorzeit in Bild und Wort. Neue Folge. Zweite Auflage. Berlin, 1898. 8vo. Ill.

PHIPSON, T. L.

Researches on the past and present History of the Earth's Atmosphere, including the latest discoveries and their practical application. London, 1901.

PRODUITS (LES) CHIMIQUES et les matières colorantes, le blanchîment, la teinture, et l'impression des fibres textiles à l'Exposition Universelle de 1900. Paris, 1901.

RAMSAY, WILLIAM.

The Gases of the Atmosphere. The History of their Discovery. London, 1896. 8vo. Ill.

Second edition. London, 1902. 8vo. Ill.

Les gaz de l'atmosphère. Histoire de leur découverte. Traduit de l'anglais par G. Charpy. Paris, 1898. 8vo.

RAY, PRAPHULLA CHANDRA.

A History of Hindu Chemistry from the Earliest Times to the middle of the Sixteenth Century A. D. With Sanskrit Texts, Variants, Translations, and Illustrations. London, 1902. Vol. I.

Volume II in press.

REBER, B.

Schweizerische Beiträge zur Geschichte der Pharmacie. Genf, 1898. 4to.

REISSERT, A.

Geschichte und Systematik der Indigo-Synthesen. Berlin, 1899.

REMSEN, IRA.

Life (The) History of a Doctrine. Presidential address delivered at the Washington meeting of the American Chemical Society, December 30, 1902. J. Am. Chem. Soc., vol. 25, p. 39. (February, 1903.)

RÖSSING, ADELBERT.

Geschichte der Metalle. Vom Verein zur Beförderung des Gewerbfleisses mit dem ersten Tornow-Preise gekrönnte Preisschrift. Berlin, 1901. 8vo.

ROSCOE, SIR HENRY E., und ARTHUR HARDEN.

Entstehung (Die) der Daltonschen Atomtheorie in neuer Beleuchtung. Ein Beitrag zur Geschichte der Chemie. Zugleich mit Briefen und Dokumenten über Dalton's Leben und Arbeiten zum ersten Male aus den im Besitz der Literary und Philosophical Society to Manchester befindlichen Manuscripten veröffentlicht. Ins Deutsche übertragen von G. W. A. Kahlbaum. Leipzig, 1898. 8vo. Ill. Portrait und Facsimiles.

See First Supplement, page 39.

ROUSSY.

Aperçu historique sur les ferments et fermentations normales et morbides, s'étendant des temps les plus reculés à nos jours. Paris, 1901.

SALICETO, WILHELM VON.

HERKNER, W. Kosmetik und Toxikologie nach Wilhelm von Saliceto (13. Jahrhundert). Berlin, 1897. 8vo.

SCHEELE, BERTHOLLET, GUYTON DE MORVEAU, GAY LUSSAC, and THÉNARD.

Early (The) History of Chlorine. Edinburgh, 1897. 12mo.

Alembic Club Reprint.

SOMZÉE, L., et C. DE.

Les precurseurs de Nernst. Paris, 1900. 4to.

STANGE, ALB.

Einführung in die Geschichte der Chemie. Münster, 1902. 8vo.

STOKES, HENRY N.

Revival (The) of Inorganic Chemistry. Science, N. S., vol. IX, No. 226, pp. 601–615. (April 28, 1899.)

THORPE, T. E.

Address at Annual General Meeting of the Chemical Society [of London], March 29, 1900. J. Chem. Soc. [of London], vol. 77, 555, 1900.

Essays in Historical Chemistry. Second edition. London and New York, 1902. 8vo.

TILDEN, WILLIAM A.

A Short History of the Progress of Scientific Chemistry in our own Times. Longmans, Green and Co. London, New York, and Bombay, 1899. 12mo. Ill.

WELSBACH, AUER VON.

History of the Invention of Incandescent Gas-Lighting. Chem. News, vol. 85, p. 254. (May 30, 1902.)

WIECHMANN, FERDINAND G.

Science Sketches. Chemistry, its evolution and its achievements. New York, 1899. 16mo. pp. VIII–175.

WILHELMJ, A.

Geschichte der Chemie im neunzehnten Jahrhundert. Das deutsche Jahrhundert, Abtheilung XI. Berlin, 1901. 8vo.

WITT, OTTO N.

Chemische (Die) Industrie auf der internationalen Weltausstellung zu Paris, 1900. Berlin, 1902.

Chemische (Die) Industrie des Deutschen Reichs im Beginne des 20. Jahrhunderts. Festschrift zum 25. Jubilaeum der Begründung des Vereins zur Wahrung der Interessen der chemischen Industrie Deutschlands. Berlin, 1902. 4to.

Katalog der Sammel-Ausstellung der Deutschen Chemischen Industrie auf der Weltausstellung zu Paris, 1900. Berlin, 1900. 4to.

WRANY, ADALB.

Geschichte der Chemie und der auf chemischer Grundlage beruhenden Betriebe in Böhmen bis zur Mitte des 19. Jahrhunderts. Prag, 1902. 8vo.

WUNCHMANN, E.

Geschichte der Physik im 19. Jahrhundert. ——, 1901.

SECTION IV.

BIOGRAPHY.

INCLUDING BIBLIOGRAPHIES OF INDIVIDUALS.

Biographies and bibliographies are placed under the names of the chemists referred to, with cross-references from the authors. For abbreviations used in this Section, see Preface.

ABEL, SIR FREDERICK AUGUSTUS.
[Necrology by] J. Spiller. Ber. d. chem. Ges., vol. 35, p. 4563, 1902. Portrait.

APPLETON, JOHN HOWARD.
See Benjamin, Marcus.

ARENDT, RUDOLF.
[Necrology and bibliography by] Fr. Etzold. Ber. d. chem. Ges., vol. 35, p. 4550, 1902. Portrait.

ATKINSON, EDMUND.
Obituary. J. Chem. Soc. [London], vol. 79, p. 888. July, 1901.

AVOGADRO, AMEDEO, e la teoria molecolare.
See in Section III, Guareschi, J.

BARKER, GEORGE FREDERIC.
Biographical sketch by Marcus Benjamin. Scient. American, vol. 57, p. 231. (October 8, 1887.) Portrait.

BENJAMIN, MARCUS.
Some American Chemists. The Chautauquan, July, 1892.
Contains biographical sketches, with portraits, of Edward W. Morley, Albert B. Prescott, John H. Appleton, Albert H. Chester, Frank W. Clarke, Charles E. Munroe, Harvey W. Wiley, Samuel P. Sadtler, Edward Hart, and William L. Dudley.

BERTHELOT, M.
Cinquantenaire scientifique de M. Berthelot (1851–1901). Compte-rendu de la céremonie du 24 Novembre, 1901. Paris, 1902. 4to. Ill.

BERZELIUS, J. J.

NILSON, L. F., och JOLIO, S. Minnesfesten öfver Jas. Berzelius 7 Oktober, 1898. Beskrifning pa uppdrag af K. Vetenskaps-Akademien utarbetad. Stockholm, 1901. 8vo.

SÖDERBAUM, H. G. Självbiografiska Anteckningar. Utgiven af K. Svenska Vetenskaps-Akademien genom H. G. S. Stockholm, 1901. 8vo. Ill. Portrait.

SÖDERBAUM, H. G. Berzelius' Werden und Wachsen, 1779–1821. Leipzig, 1809. 8vo. Portrait.

Cf. in Section III, Monographien.

HJELT, E. Aus Jac-Berzelius' und Gustav Magnus' Briefwechsel in den Jahren, 1828–1847. Braunschweig, 1900. 8vo.

BERZELIUS and SCHÖNBEIN.

The Letters of Jöns Jacob Berzelius and Christian Friedrich Schönbein, 1836–1847. Edited by Georg W. A. Kahlbaum. Translated by Francis V. Darbishire and N. V. Sidgwick. London, 1900.

BERZELIUS und WÖHLER.

Briefwechsel zwischen J. J. Berzelius und F. Wöhler. Im Auftrage der Königl. Gesellschaft der Wissenschaften mit einem Commentar von J. Braun, herausgegeben von O. Wallach. Berlin, 1901. 2 vols., 8vo. Portraits.

BOLTON, HENRY CARRINGTON.

See Bunsen, R. W.

BOOTH, JAMES CURTIS.

Biographical sketch by Marcus Benjamin. Scient. American, vol. 59, p. 359. (June 9, 1888.) Portrait.

BOYÉ, MARTIN H.

A Pioneer of Science. [A biography by W. H. Hale.] Scientific American, vol. LXXV, p. 430. (December 12, 1896.)

BUNSEN, ROBERT WILHELM.

Obituary. Chem. News, 80, 94. August 25, 1899.

Necrology. Ber. d. d. chem. Gesell., 32, 2535. (October 23, 1899.)

BOLTON, HENRY CARRINGTON. Reminiscences of Bunsen and the Heidelberg Laboratory, 1863–1865. Science, N. S., vol. X, p. 865 (December 15, 1899). Chem. News, 80, 283 (December 15, 1899). Pharmaceutical Era, February 15, 1900.

BUNSEN, ROBERT WILHELM. [Cont'd.]

DEBUS, H. Erinnerungen an R. W. B. und seine wissenschaftliche Leistungen. Cassel, 1901. 8vo. Portrait.

Ein Akademisches Gedenkblatt. Heidelberg, 1900. 4to.

Contains memorial addresses at the interment 19 August, 1899, and biographical sketch read 11 November, 1899, by Prof. Theodor Curtius.

Bunsen Memorial Lecture. By Sir Henry Roscoe [delivered to Chemical Society, March 29, 1900]. Trans. Chemical Society [of London], vol. 77, pp. 513–554. Smithsonian Miscellaneous Collections, No. 1251, Washington, 1901.

OSTWALD, W. Gedenkrede auf R. W. B. (Zeitschrift für Elektrochemie.) Halle, 1901.

BUNSEN, ROBERT.

See Memorial Lectures.

CASTNER, HAMILTON YOUNG.

Biography. Electrochemical Industry, vol. 1, p. 121. Portrait.

CHESTER, ALBERT H.

See Benjamin, Marcus.

CLARKE, FRANK W.

See Benjamin, Marcus.

CHANDLER, CHARLES FREDERICK.

Biographical sketch by Marcus Benjamin. Scient. American, vol. 57, p. 39. (July 16, 1887.) Portrait.

CHEVREUL.

Discours prononcés (par A. Gautier et E. Perrier) à l'inauguration de la statue élevée à la mémoire de Chevreul le 11 juillet 1901. Paris, 1901. 4to.

COCK, WILLIAM JOHN.

[Biographical Sketch] Chemical News, 80, 287. (December 15, 1899.)

COHEN, E.

See Hoff, Jacobus Hendricus van't.

CONROY, SIR JOHN.

Obituary. J. Chem. Soc. [London], vol. 79, p. 889. (July, 1901.)

COOKE, JOSIAH PARSONS.

Biographical sketch by Marcus Benjamin. Scient. American, vol. 57, p. 377. (December 10, 1887.) Portrait.

DALTON, JOHN.
See, in Section III, Roscoe, Henry E., and A. Harden.

DRAGENDORFF, G. N.

LIEBERMANN, C. Necrology of G. N. D. Ber. d. chem. Gesell., vol. 31, 806. (1898.)

DUDLEY, WILLIAM L.
See Benjamin, Marcus.

FARADAY, MICHAEL.

THOMPSON, SILVANUS P. Michael Faraday, his life and work. London and New York, 1898. pp. xii–308. 12mo. Ill. Portrait of Faraday.
Second edition, 1901.

THOMPSON, SILVANUS P. Michael Faraday's Leben und Wirken. Autorisirte Uebersetzung von A. Schütte und H. Dannell. 8vo. Halle, 1900. Portrait and illustrations.

THOMPSON, SILVANUS P. Faraday und die Englische Schule der Elektriker. Halle, 1901. 8vo.

WÜRFEL, W. Faraday's Bestreitung der Atomistik in erkenntnisstheoretischen Lichte. Neuhaldensleben, 1901. 4to.

FARADAY and SCHÖNBEIN.

Letters (The) of Faraday and Schönbein, 1836–1862, with notes, comments, and references to contemporary letters. Edited by Georg W. A. Kahlbaum and Francis V. Darbishire. Bâle and London, 1899. Portraits of F. and S. pp. xvi–376–[ii].

FINKENER, RUDOLF.

[Necrology by] H. Toussaint. Ber. d. chem. Ges., vol. 35, p. 4534, 1902.

FRANKLAND, SIR EDWARD.

Necrology. Ber. d. chem. Gesell., 32, 2540. (October 23, 1899.)

Obituary. Chem. News, 80, 81. (August 18, 1899.)

Obituary. J. Am. Chem. Soc., vol. 22, p. 49. (January, 1900.)

WISLICENUS, JOHANNES. Obituary, bibliography, and portrait of Sir Edward Frankland. Ber. d. chem. Ges., vol. 33, p. 3847. (April 1, 1901.)

FRESENIUS. C. REMIGIUS.

FRESENIUS, H. Zur Erinnerung an R. Fresenius; seinem verstorbenen Vater in der Zeitschrift für analytische Chemie gewidmeter Nachruf. Wiesbaden, 1898. 8vo. Portrait.

FRIEDEL, CHARLES.

See Memorial Lectures.

FRIEDEL, CHARLES.

HANRIOT, M. Notice sur la vie et les travaux de C. F. Bull. Soc. chim. Paris [3], vol. 23, i. (July, 1900.)

With portrait and bibliography.

LADENBURG, A. [Bibliographical Sketch of C. F., with portrait.] Berichte d. d. chem. Ges., vol. 32, p. 3721. (1899.)

GALVANI, LUIGI.

MANARESI, A. Luigi Galvani. Bologna, 1899. 8vo.

VITTA, E. Luigi Galvani. Bologna, 1899. 8vo.

GENTH, FREDERICK AUGUSTUS.

BARKER, GEORGE F. Memoir of F. A. G. Read before the American Philosophical Society, December 6, 1901. 8vo.

GERHARDT, CHARLES, sa vie, son oeuvre, sa correspondance (1816–1856). Par Edouard Grimaux et Charles Gerhardt. Paris, 1900. 8vo. Portrait.

GIBBS, WOLCOTT.

Biographical sketch by Marcus Benjamin, in "Meeting of the American Association." Scient. American, vol. 77, p. 89. August 7, 1897. Portrait.

GILBERT, JOSEPH HENRY.

Obituary. J. Chem. Soc. [London], vol. 81, p. 625. (June, 1902.)

GILBERT, SIR HENRY.

Obituary. Chem. News, 85, p. 10. (January 3, 1902.)

GLADSTONE, JOHN HALL.

Obituary. Chem. News, 86, 184. (October 10, 1902.)

Obituary. Nature, vol. 66, p. 609. (October 16, 1902.)

HARKNESS, WILLIAM.

Obituary. J. Chem. Soc. [London], vol. 77, p. 592, 1900.

HART, EDWARD.
See Benjamin, Marcus.

HASENCLEVER, ROBERT.
[Necrology by] F. Quincke. Ber. d. chem. Ges., vol. 35, p. 4550, 1902.

HELMHOLTZ, HERMANN VON.
KÖNIGSBERGER, L. Hermann von Helmholtz. Braunschweig, 1902. 2 vols., 8vo. Portraits.

HELMHOLTZ, HERMANN VON.
See Memorial Lectures.

HENRIQUES, ROBERT.
[Necrology by] D. Holde. Ber. d. chem. Ges., vol. 35, p. 4528, 1902.

HIEPE, W. L.
Obituary. J. Chem. Soc. [London], vol. 73, p. 1047, 1898.

HILL, NATHANIEL PETER.
Obituary by John Howard Appleton. J. Am. Chem. Soc., vol. 23, p. 363. (June, 1900.)

HODGES, JOHN FREDERICK.
Obituary. Chem. News, vol. 80, p. 315. (December 29, 1899.)
Obituary. J. Chem. Soc. [London], vol. 77, p. 593, 1900.

HOFF, JACOBUS HENDRICUS VAN'T.
COHEN, E. J. H. v. H. Ein Lebensbild nebst Verzeichniss seiner Schriften. Leipzig, 1899. 8vo. Portrait.

DUHEM, P. J. H. v. H. et son oeuvre. Paris, 190c.

HOFMANN, AUGUST WILHELM VON.
Ein Lebensbild im Auftrage der Deutschen chemischen Gesellschaft verfasst von Jacob Volhard und Emil Fischer. Sonderheft der Berichte der deutschen chemischen Gesellschaft, vol. 35, 1902. Berlin, 1902. Two portraits.

Noelting et Gerber. A. W. von. H. sa vie et son œuvre. Paris, 1897. 4to.

PINNER, A. Bericht über die Einweihung des Hofmann-Hauses 20. October, 1900. With illustrations, Hofmann's statue, Hall, etc. Ber. d. chem. Ges. Sonderheft. Berlin, 1901.

HOFMANN, AUGUSTUS WILHELM VON.
See Memorial Lectures.

HUMMEL, JOHN JAMES.
Necrology. Chem. News, 86, 184. (October 10, 1902.)
[Necrology by] R. Beaumont. Ber. d. chem. Ges., vol. 35, p. 4559, 1902.

HUNT, THOMAS STERRY.
Biographical sketch by Marcus Benjamin. Scient. American, vol. 66, p. 182. (March 19, 1892.) Portrait.

KÄMMERER, H.
LIEBERMANN, C. Necrology of H. K. Ber. d. chem. Ges., vol. 31, 805. (1898.)

KAHLBAUM, GEORG W. A. [Editor].
See Faraday and Schönbein; *also*, Schönbein, C. F.; *also*, Monographien; *also*, Wöhler, F.

KEKULÉ, AUGUST.
See Memorial Lectures.

KELVIN, LORD, Professor of Natural Philosophy in the University of Glasgow, 1846–1899. With Essay on his scientific work by G. F. Fitzgerald. Glasgow, 1899. 4to.

KJELDAHL, JOHAN.
JOHANNSEN, W. Obituary of J. K. Berichte d. chem. Ges., vol. 33, p. 3881. (April 1, 1901.) Portrait.

KOPP, HERMANN.
See Memorial Lectures.

KÜHNE, WILLY.
HOFMEISTER, F. Obituary of W. K. Ber. d. chem. Ges., vol. 33, p. 3875. (April 1, 1901.)

KUSSMAUL, A.
Ein Dreigestirn grosser Naturforscher an der Heidelberger Universität in 19. Jahrhundert. Deutsche Revue, vol. 27, p. 35 and p. 173. (Januar–Februar, 1902.)

LAVOISIER, ANTOINE.
See in Section III, Monographien.

LAVOISIER. ANTOINE.

BERTHELOT. M. L'œuvre de Lavoisier. Revue générale des sciences. August 15. 1900.

Centenarul lui Lavoisier. 1794–1894. Buletinul Societatei de Scinte Fizice. Bucuresci. 1895. pp. 185. Sm. folio. Portrait and plates.

In Roumanian and French.

GRIMAUX. E. Lavoisier (1743–1794) d'après sa correspondance, ses manuscrits, ses papiers de famille et d'autres documents inédits. Troisième édition. Paris. 1899. 8vo. Ill.

LAWES. SIR JOHN BENNET.

Obituary. J. Chem. Soc. [London], vol. 79, p. 890. (July, 1901.)

LIEBIG. JUSTUS VON.

ROTH, WALTER. Ein Gedenkblatt zu seinem 25 jährigen Todestag (18 April. 1898). Stuttgart. 1898. 8vo.

Sammlung chemischer . . . Vorträge.

SHENSTONE. W. A. J. von Liebig, his Life and Work, 1803–'73. New edition. London, 1901. 8vo.

LIEBIG, J. VON, und C. F. SCHÖNBEIN.

Briefwechsel, 1853–1868. Herausgegeben von G. W. A. Kahlbaum und E. Thon. Leipzig. 1900. 8vo.

Cf. in Section III, Monographien.

Cf. Schönbein, C. F.

LIONARDO DA VINCI.

LIPPMANN, E. O. VON. L. da V. als Gelehrter und Techniker. Stuttgart. 1900.

MACADAM, STEVENSON.

Obituary. J. Chem. Soc. [London], vol. 79, p. 897. (July, 1901.)

MADAN, HENRY GEORGE.

Obituary. J. Chem. Soc. [London], vol. 81, p. 628. (June, 1902.)

Obituary. Chem. News, 85, p. 10. (January 3, 1902.)

MAERCKER, MAX.

BEHREND, P. M. M.: ein Rückblick. Berlin, 1902. Portrait.

M. DELBRUCK. Nekrolog auf Max Maercker. Ber. d. chem. Gesell., vol. 34, p. 4457. (1902.) Portrait.

MALAGUTI, FAUSTINO, e le sue opere.

See in Section III, Guareschi, J.

MARCET, WILLIAM.
Obituary. J. Chem. Soc. [London], vol. 77, p. 594 (1900).

MARIGNAC, JEAN CHARLES GALISSARD DE.
See Memorial Lectures.

MEMORIAL LECTURES delivered before the Chemical Society, 1893–1900. By J. W. Mallet, T. E. Thorpe, P. T. Cleve, Lord Playfair, F. A. Abel, W. H. Perkin, H. E. Armstrong, G. F. Fitzgerald, P. P. Bedson, P. F. Frankland, F. R. Japp, H. E. Roscoe, J. M. Crafts, O. Petterson. London, 1901. 8vo. Twelve portraits. Facsimiles.
[*Contents :* STAS, by J. W. Mallet; KOPP, by T. E. Thorpe; MARIGNAC, by P. T. Cleve; HOFMANN, by Playfair, Abel, Perkin, and Armstrong; HELMHOLTZ, by G. F. Fitzgerald; LOTHAR MEYER, by P. P. Bedson; PASTEUR, by P. Frankland; KEKULÉ, by F. R. Japp; VICTOR MEYER, by T. E. Thorpe; BUNSEN, by H. E. Roscoe; FRIEDEL, by J. M. Crafts; NILSON, by O. Petterson.]

MEYER, LOTHAR.
See Memorial Lectures.

MEYER, VICTOR.
THORPE, T. E. The Meyer Memorial at the Chemical Society [of London] held February 8, 1900. Abstract in Chem. News, 81, 100. March 2, 1900.
LUNGE, G. Nachruf auf V. M. Vierteljahrsschrift der naturforschender Gesellschaft, Zürich, 1897. 8vo.
Portrait of Victor Meyer.
See Memorial Lectures.

MILLER, WILHELM VON.
DOEBNER, O. [Biography, bibliography, and portrait of W. von M.] Berichte d. d. chem. Ges., vol. 32, p. 3756. (1899.)

MOHR, FRIEDRICH.
HASENCLEVER, ROBERT. Erinnerungen an Friedrich Mohr. Ber. d. chem. Ges., vol. 33, p. 3827. (April, 1901.) Portrait.

MORLEY, EDWARD WILLIAMS.
Biographical sketch by Marcus Benjamin. Scient. American, vol. 73, p. 147. (September 7, 1895.) Portrait.
See also Benjamin, Marcus.

MORTON, HENRY.
Obituary. Chem. News, 86, 197. (October 17, 1902.)

MUSMACHER, C.
Kurze Biographien berühmter Physiker. Freiburg i. B. 1902.

NENCKI, MARCEL VON.
[Necrology by] Martin Hahn. Ber. d. chem. Ges., vol. 35, p. 4503, 1902.

NEWLANDS, JOHN ALEXANDER REINA.
Obituary. Nature, vol. 58, p. 395. (August 25, 1898.)
Obituary. Chem. News, 78, 82. (August 12, 1898.)

NIETZKI, R. Entwickelungsgeschichte der künstlichen organischen Farbstoffe. Stuttgart, 1902. 8vo.

NILSON, LARS FREDRIK.
See Memorial Lectures.

OGSTON, GEORGE HENRY.
Obituary. J. Chem. Soc. [London], vol. 77, p. 594, 1900.

PARACELSUS.
See in Section VI, PARACELSUS.

PASTEUR, LOUIS.
VALLERY-RADOT, R. La vie de Pasteur. Paris, 1900. 8vo. Portrait.
Vallery-Radot, R. Life of Pasteur. New York, 1902. 2 vols., 8vo.
See Memorial Lectures.

PETTENKOFER, M. V.
Ueber die regelmässigen Abstände der Aequivalentzahlen der sogenannten einfachen Radikale. (1850.) Jubiläumsausgabe, nebst Reclamation der Priorität gegen Dumas, Pettenkofer's Biographie u. Anhang: Zur Atomtheorie, mit einer Tabelle (System der Elemente) von J. Quaglio. Berlin, 1900. 4to.

PLAYFAIR, LYON.
Memoirs and Correspondence of L. P., First Lord Playfair of St. Andrews. By Wemyss Reid. London, 1899. 8vo.
Obituary. Chem. News, 77, 261. (June 3, 1898.)
(Review of Memoirs) Nature, vol. 61, p. 121. (December 7, 1899.)

PLIMPTON, RICHARD TAYLOR.
Obituary. J. Chem. Soc. [London] vol. 77, p. 595, 1900.

POGGENDORFF, J. C.
Biographisch-litterarisches Handwörterbuch zur Geschichte der exakten Wissenschaften, enthaltend Nachweisungen über Lebensverhältnisse und Leistungen von Mathematikern, Astronomen, Physikern, Chemikern, Mineralogen, Geologen, Geographen u. s. w. aller Völker und Zeiten. Band IV (von 1883 bis zur Gegenwart), herausgegeben von A v. Oettingen. Leipzig, 1902.
In progress.

PRESCOTT, ALBERT B.
Biographical sketch and Portrait. Pharmaceutical Review, vol 20, No. 7. (July, 1902.)
Biographical sketch by Marcus Benjamin. Scient. American, vol. 65, p. 120. (August 20, 1891.) Portrait.
See also Benjamin, Marcus.

RAMMELSBERG, CARL FRIEDRICH.
Obituary. Ber. d. chem. Ges., vol. 33, 1, 1900.

RAMMELSBERG MEMORIAL LECTURE. By H. A. Miers. J. Chem. Soc. [London], vol. 9, p. 1, 1901. Delivered December 13, 1900. Portrait.
See also Chem. News, vol. 83, p. 31 (1901).

RANDALL, W. B.
Obituary. J. Chem. Soc. [London], vol. 81, p. 629. (June, 1902.)

RAOULT, FRANÇOIS MARIE.
JONES, HARRY C. Necrology of F. M. R. Science, N. S., vol. 13, p. 881. (June 7, 1901.)

REYNOLDS, HENRY CHARLES.
Obituary. J. Chem. Soc. [London], vol. 77, p. 596 (1900).

RIEMSDIJK, A. D. VAN.
Obituary. Chem. News, 78, 10. (July 1, 1898.)

ROBERTS-AUSTEN, SIR WILLIAM.
Obituary. Chem. News, vol. 86, p. 267. (November 28, 1902.)

RODGER, JAMES WYLLIE.
Obituary. J. Chem. Soc. [London], vol. 73, p. 1047 (1898).

ROUELLE, GUILLAUME FRANÇOIS (ainé).
Éloge de M. Rouelle. Histoire de l'Acad. des sciences, 1770, p. 137. Paris, 1773. 4to.

RÜDORFF, FRIEDRICH.

[Necrology and bibliography by] A. Stavenhagen. Ber. d. chem. Ges., vol. 35, p. 4536 (1902).

SADTLER, SAMUEL P.

See Benjamin, Marcus.

SCHEIBLER, CARL.

DEGENER, P. Nekrolog auf Carl Scheibler. Ber. d. chem. Ges., vol. 33, p. 3839. (April 1, 1901.) Portrait.

SCHEURER-KESTNER, AUG.

LAUTH, CHARLES. Notice de la vie et les travaux de A. S.-K. Bibliography and portrait. Bull. Soc. chim. [3], vol. XXV, pages I–XXXI. (May 20, 1901.)

SCHMITT, RUD.

LIEBERMANN, C. Necrology of R. S. Ber. d. chem. Ges., vol. 31, 325. (1898.)

SCHMITT, RUDOLF WILHELM.

WALTHER HEMPEL. Necrology of R. W. S. Ber. d. chem. Gesell., vol. 31, p. 3359. (March 30, 1899.) Portrait.

SCHÖNBEIN, CHRISTIAN FRIEDRICH.

Der Basler Chemiker Chr. Fr. Schönbein 100 Jahre nach seiner Geburt gefeiert von der Universität und Naturforschenden Gesellschaft in Basel. Verhandlung der Naturforschenden Gesellschaft in Basel. Basel, 1900. 8vo.

C. F. S.'s hundertstem Geburtstag. Akademische Festrede gehalten am 18 Oktober, 1899, von Georg W. A. Kahlbaum. Basel, 1899. 4to.

KAHLBAUM, G. W. A., und E. SCHAER. C. F. S., 1799–1868. Ein Blatt zur Geschichte des 19. Jahrhunderts. Leipzig, 1899–1900. 2 vols, 8vo. Portrait.

Cf. Monographien in Section III.

Cf. Faraday and Schönbein.

SCHREINEMAKERS, F. A. H.

Ein blik in de Ontwikkeling der Scheikunde. Leiden, 1901.

SCHROEDER, W. VON.

GOTTLIEB, R. Necrology of W. v. S. Ber. d. chem. Ges., vol. 31, p. 227. (1898.)

SCHWANERT, HUGO.
[Necrology by] H. Limpricht. Ber. d. chem. Ges., vol. 35, p. 4522, 1902.)

SCHUNCK, HENRY EDWARD.
Obituary. Chem. News, Vol. 87, p. 34. (January 16, 1903.)
Obituary. Berichte d. chem. Ges., vol. 36, p. 305. (February, 1903.)

SHAW, SAVILLE.
Obituary. J. Chem. Soc. [London], vol. 81, p. 630. (June, 1902.)

STAS, JEAN SERVAIS.
See Memorial Lectures.

SILLIMAN, BENJ., SR.
See Youmans, W. J.

SIMPSON, MAXWELL.
Obituary. J. Chem. Soc. [London], vol. 81, p. 631. (June, 1902.)

SPIVEY, WILLIAM THOMAS NEWTON.
Obituary. J. Chem. Soc. [London], vol. 81, p. 635. ((June, 1902.

STANFORD, EDWARD CHARLES CORTIS.
Obituary. J. Chem. Soc. [London], vol. 77, p. 597 (1900).

STAS, J. S.
HENRY, L. Une page de l'histoire de la chimie générale en Belgique. Stas et les lois des poids. Bulletin de l'Académie des Sciences de Bruxelles, 1899. Portrait.

SWORN, SIDNEY AUGUSTUS.
Obituary. J. Chem. Soc. [London], vol. 77, p. 598 (1900).

THOMPSON, SILVANUS P.
See Faraday, Michael.

THORP, WILLIAM.
Obituary. J. Chem. Soc. [London], vol. 77, p. 599 (1900).

TIEMANN, FERDINAND.
Necrology. Ber. d. chem. Ges., 32, 209. (November 27, 1899.)
Obituary. Nature, vol. 61, p. 133. (December 7, 1899.)

TIEMANN, JOHANN KARL FERDINAND.

Obituary. J. Chem. Soc. [London], vol. 77, p. 600 (1900).

OTTO N. WITT. Ferdinand Tiemann, ein Lebensbild. Ber. d. chem. Gesellschaft, vol. 34, p. 4403. Portrait and bibliography. (1902.)

VOLTA, ALESSANDRO.

OBÉ, U. Per il centenario della pila Voltiana. Cenni storici, biografici, illustrativi sulla vita, studi e scoperte di A. V. Genova, 1899. 8vo.

Portraits.

Raccolta Voltiana, edita per cura della Società storica Comense e del Comitato esecutivo per le onoranza a Volta. Como, 1899. 4to. Ill.

VOLTA, A., Junior. Alessandro Volta e il suo tempo. Coll' aggiunta della lettera inedita di Volta a Barletti (1777) sulla pistola elettrica. Milano, 1900. 8vo.

Portrait and fac-simile.

Onoranze dei telegrafisti a Volta nel centenario della pila. Como, 1899. Fol.

RIGHI, A. Volta e la pila. Como, 1899. 8vo.

GRANDI, C. A. V. Milano, 1899.

Portrait and fac-simile.

MARTINI, T. Intorno alle scoperte di Alessandro Volta. Venezia, 1899. 8vo.

WAAGE, PETER.

Obituary. J. Chem. Soc. [London], vol. 77, p. 591 (1900).

WAALS, J. D. VAN DER.

LAAR, J. J. VAN. J. D. v. d. W. Ein Lebensabriss. Leipzig, 1901.

WEIDEL, HUGO.

HERZIG, J. [Biographical sketch of H. W., with bibliography.] Berichte d. d. chem. Ges., vol. 32, p. 3745. (1899.)

WILEY, HARVEY W.

See Benjamin, Marcus.

WÖHLER, FRIEDRICH.

KAHLBAUM, G. W. A. Friedrich Wöhler. Ein Jugendbildniss in Briefen an H. von Meyer. Mit Anmerkungen. Leipzig, 1900. 8vo.

YOUMANS, WILLIAM JAY.

Pioneers of Science in America. Sketches of their lives and scientific work. New York, 1896. 8vo. Ill. Portrait of each scientist.

Contents: Benjamin Franklin, John and William Bartram, John Winthrop, David Rittenhouse, G. H. E. Muhlenberg, S. L. Mitchill, B. S. Barton, Alexander Wilson, David Hosack, Amos Eaton, Gerard Troost, C. A. Lesuer, Benjamin Silliman, Sr., J. J. Audubon, L. D. von Schweinitz, Robert Hare, C. S. Rafinesque, J. P. Espy, Thomas Nuttall, Thomas Say, W. C. Bond, S. F. B. Morse, Denison Olmsted, Isaac Lea, Gardner Vanuxem, Elisha Mitchell, Edward Hitchcock, H. R. Schoolcraft, S. L. Dana, Zadoc Thompson, John Torrey, George Catlin, Ebenezer Emmons, Joseph Henry, James B. Rogers, John Ericsson, T. A. Conrad, W. S. Sullivant, W. W. Mather, W. B. Rogers, C. U. Shepard, S. C. Walker, A. D. Bache, J. H. Coffin, Leo Lesquereux, M. F. Maury, J. R. L. Agassiz, A. H. Guyot, D. D. Owen.

SECTION V.

CHEMISTRY, PURE AND APPLIED.

ABADY, JACQUES.

Gas Analysts' Manual (Incorporating F. W. Hartley's "Gas Analysts' Manual" and "Gas Measurement.") London, 1902. 8vo. Ill.

ABANO, PETRUS DE.

See Petrus de Abano.

ABEGG, R.

Anleitung zur Berechnung volumetrischer Analysen. Breslau, 1900. 8vo.

ABEGG, R., and W. HERZ.

Chemisches Practikum. Experimentelle Einführung in präparative und analytische Arbeiten auf physikalisch-chemischen Grundlage. Göttingen, 1900. 8vo.

Practical Chemistry. An experimental introduction to laboratory practice and qualitative analysis from a physico-chemical standpoint. Translated, with the author's sanction, by H. B. Calvert. London and New York, 1901. 12mo. Ill.

ABEL, MARY HINMAN.

Beans, Peas, and other legumes as Foods. Farmers' Bulletin, No. 121. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1900.

Sugar as Food. Farmers' Bulletin, No. 93. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1899.

ADIE, R. H.

Introduction (An) to the Carbon Compounds. London, 1899. 8vo.

AGGLOMÉRÉS (LES). Les agglomérés de houilles, agglomérés sablo-calcaires ou pierre artificielle, agglomérés divers. Paris, 1900. 8vo. Ill.

AHRENS, F. B.

Acetylen (Das) in der Technik. Stuttgart, 1899. 8vo. Ill.

Sammlung chemischer und chemisch-technischer Vorträge.

Anleitung zur chemisch-technischen Analyse. Lehr- und Nachschlagebuch für Studirende, Chemiker, Hüttenleute, Techniker u. s. w. Stuttgart, 1900. 8vo. Ill

Gährungsproblem (Das). Stuttgart, 1902.

Sammlung chemischer und chemisch-technischer Vorträge.

Schlesiens chemische Industrie und die technische Hochschule in Breslau. Breslau, 1898. 8vo.

AIKMAN, C. M.

Milk, its Nature and Composition. Second edition. London, 1899. 8vo.

AIMÉ, G.

De l'influence de la pression sur les actions chimiques. Avec une introduction par P. Duhem. Paris, 1899. 8vo.

AISINMAN, S.

Die destructive Destillation in der Erdölindustrie. Stuttgart, 1900. 8vo. Ill.

ALESSANDRI, P. E.

Analisi chimica qualitativa di sostanze minerali ed organiche e ricerche tossicologiche. Secunda edizione intieramente rifatta. Milano, 1901. 16mo. Ill.

Chimica applicata all' igiene, guida practica ad uso degli ufficiali sanitari, medici, farmacisti, commercianti e practicanti nei laboratori d'igiene. Milano, 1900. 16mo. Ill.

ALINO, B. G.

Química agricola. Tratado de Abonos. Madrid, 1898. 4to.

ALLEN, ALFRED H.

Commercial Organic Analysis. A treatise on the properties, proximate analytical examination, and modes of assaying the various organic chemicals and products employed in the arts, manufactures, medicine, with concise methods for the detection and determination of their impurities, adulterations, and products of decomposition. With revisions and addenda by the author and Henry Leffmann. 4 vols. London and Philadelphia, 1898–1900. 8vo.

ALLEN, ALFRED H. [Cont'd.]

Vol. I. Preliminary Examination of Organic Bodies. Alcohols, Neutral Alcoholic Derivatives, Ethers, Starch and its Isomers, Sugars, Acid Derivatives of Alcohols and Vegetable Acids, etc. Third edition, with numerous additions by the author, and revisions and additions by Henry Leffmann.

Vol. II—Part I. Fixed Oils, Fats, Waxes, Glycerin, Soaps, Nitroglycerin, Dynamite and Smokeless Powders, Wool-Fats, Dégras, etc. Third edition, with many useful tables. Revised by Henry Leffmann, with numerous additions by the author.

Vol. II—Part II. Hydrocarbons, Mineral Oils, Lubricants, Asphalt, Benzene and Naphthalene, Phenols, Creosote, etc. Third edition, by Henry Leffmann, with many additions by the author.

Vol. II—Part III. Terpenes, Essential Oils, Resins, Camphor, Aromatic Acids, etc. Third edition, revised by the author and Henry Leffmann.

Vol. III—Part I. Tannins, Dyes, Coloring Matters, and Writing Inks. Third edition, revised, rewritten, and enlarged by J. Merritt Matthews.

Vol. III—Part II. The Amines and Ammonium Bases, Hydrazines, and Derivatives. Bases from Tar. The Antipyretics, etc. Vegetable Alkaloids, Tea, Coffee, Cocoa, Kola, Cocaine, Opium, etc. Second edition, with numerous addenda.

Vol. III—Part III. Vegetable Alkaloids concluded, Non-Basic Vegetable Bitter Principles. Animal Bases, Animal Acids, Cyanogen and its Derivatives, etc. Second edition.

Vol. IV. The Proteids and Albuminous Principles. Proteïds or Albuminoïds. Second edition, with elaborate appendices and a large number of useful tables.

ALQUIER, J.

Analyse élémentaire des substances végétales. Paris, 1902. 8vo. Ill.

Analyse immédiate des aliments végétaux du betail. Paris, 1902. 8vo. Ill.

ALTMANN, E.

Grundriss der Chemie für landwirthschaftliche Lehranstalten. Fünfte Auflage. Part I. Unorganische Chemie. Leipzig, 1899. 8vo. Ill.

ALTMANN, E. [Cont'd.]

Organische Chemie. Leitfaden für den Unterricht an landwirthschaftlichen Lehranstalten. Vierte verbesserte Auflage. Prenzlau, 1898. 8vo. Ill.

ALVAREZ, E. P.

Química moderna. Principios de química mineral y organica. Valladolid, 1898. 4to.

AMES, J. S.

The Free Expansion of Gases. Memoirs by Gay-Lussac, Joule, and Joule and Thomson. Translated and edited by J. S. Ames. New York, 1898. 8vo. Ill.

Harper's Scientific Memoirs.

ANALYSE des eaux destinées à l'alimentation publique. Méthodes et procédes employés par le laboratoire. Paris, 1901. 8vo.

ANDÉS, LOUIS EDGAR.

Animal Fats and Oils. Their practical production, purification, and uses for a great variety of purposes, their properties, falsification, and examination. A handbook for manufacturers of oil and fat products, soap and candle makers, agriculturists, tanners, &c. Translated by Charles Salter. London, 1898. 8vo. Ill.

Drying Oils, Boiled Oil, and Solid and Liquid Driers; a practical work for manufacturers of oils, varnishes, printing inks, oilcloth, and linoleum, oil-cakes, paints, etc. London, 1901. 8vo. Ill.

Eisenrost (Der), seine Bildung, Gefahren und Verhütung, unter besonderer Berücksichtigung der Verwendung des Eisens als Bau- und Constructionsmaterial. Wien, 1898. 8vo. Ill.

Iron Corrosion; antifouling and anticorrosive paints. Translated from the German by C. Salter. London, 1900. 8vo. Ill.

ANDRES, E.

Die Fabrikation der Lacke, Firnisse, Buchdruckerfirnisse und des Siegellackes. Fünfte sehr vermehrte und verbesserte Auflage. Wien, 1900. 8vo. Ill.

ANGELO, G. D'.

Il vetro, fabbricazione, lavoraziora meccanica, ecc. Milano, 1902. 12mo. Ill.

ARNOLD, CARL. [Cont'd.]

Repetitorium der Chemie, mit besonderer Berücksichtigung der für die Medicin wichtigen Verbindungen sowie des Arzneibuches für das Deutsche Reich und anderer Pharmakopöen. Neunte verbesserte und ergänzte Auflage. Hamburg, 1899. 8vo.

Repetitorium der Chemie . . . Zehnte verbesserte und ergänzte Auflage. Hamburg, 1900. 8vo.

ARNOLD, L. R.

Contributions à l'étude des laits fermentées. Montpellier, 1899. 8vo.

ARRHENIUS, SVANTE.

Lehrbuch der Elektrochemie. Vom Verfasser durchgesehene- und vermehrte Deutsche Ausgabe, aus dem Schwedischen übersetzt von H. Euler. Leipzig, 1901. 8vo. Ill.

A Text-book of Electro-Chemistry. Translated from the German edition by John McCrae. London, 1902.

ARSENIC. Papers, discussions, and abstracts from the Journal of the Society of Chemical Industry (1901), and from other sources. London, 1901.

ART (THE) OF BREWING ON SCIENTIFIC PRINCIPLES. Adapted to the use of Brewers and Private Families. New edition. London, 1877.

ART OF DYEING WOOL, SILK, and COTTON. Translated from the French of M. Hellot, M. Macquer, and M. Le Pileur D'Apligny. First published in English in 1789. London, 1901. 8vo. Ill.

ARTHUS, MAURICE.

Éléments de chimie physiologique. Troisième édition. Paris, 1900, 16mo. Ill.

Quatrième édition revue et augmentée. Paris, 1903. 16mo. Ill.

ASHBY, HOLDON M.

How to Analyze Clay; practical methods for practical men. Chicago, 1898. 8vo. Ill.

ASKINSON, G. W.

Die Fabrikation der ätherischen Oele. Zweite vermehrte und verbesserte Auflage. Wien. [illegible]. 8vo. Ill.

Dritte Auflage. Wien. [illegible]. 8vo. Ill.

ASTRUC, A.

Alcalimétrie et acidimétrie dans la série organique. Montpellier. [illegible].

De l'acidimétrie de l'acide phosphorique. Ses applications. Montpellier. 1898. 4to.

ASTRUC, H.

Le vin. Vinification, conservation, maladies des vins, sous-produits, etc. Paris. 1901.

ATLAS CHEMICAL COMPANY.

Chemische Recepte. 1000 neue Recepte zur Herstellung von Farben und anderen chemischen Produkten mit Erklärungen und vollständiger Anleitung zur Fabrikation. Sunderland. 1897. 8vo.
There are also English and French editions.

ATTFIELD, J.

Chemistry General, Practical, and Pharmaceutical, including the Chemistry of the British Pharmacopœia. Manual of the science of Chemistry and its applications in medicine and pharmacy. Seventeenth edition. London. 1898. 8vo. Ill.

Sixteenth [American] edition, entirely new and revised. Philadelphia. 1899. 12mo. Ill.

ATWATER, HELEN W.

Bread and the Principles of Bread Making. Farmers' Bulletin, No. 112. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1900.

ATWATER, W. O.

Food and Diet. Four Charts, 26 by 40 inches. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1896.

Foods; Nutritive Value and Cost. Farmers' Bulletin, No. 23. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1894.

ATWATER, W. O., and A. P. BRYANT.

Dietary Studies in Chicago in 1895 and 1896. Conducted with the coöperätion of Jane Addams and Caroline L. Hunt, of Hull House. Bulletin No. 55. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1898.

The Chemical Composition of American Food Materials. Revised edition. Washington, D. C., 1899.

Dietary Studies of University Boat Crews. Bulletin No. 75. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1900.

ATWATER, W. O., F. G. BENEDICT, A. W. SMITH, and A. P. BRYANT.

Experiments on the Metabolism of Matter and Energy in the Human Body. Bulletin No. 69. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1899.

ATWATER, W. O., and C. F. LANGWORTHY.

A Digest of Metabolism Experiments in which the Balance of Income and Outgo was Determined. Bulletin No. 45. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1898.

ATWATER, W. O., and E. B. ROSA.

Description of a new Respiration Calorimeter and Experiments on the Conservation of Energy in the Human Body. Bulletin No. 63. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1899.

ATWATER, W. O., and CHAS. D. WOODS.

Dietary Studies in New York City in 1895 and 1896. Bulletin No. 46. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1898.

Dietary Studies with reference to the Food of the Negro in Alabama in 1895 and 1896. Conducted with the coöperation of the Tuskegee Normal and Industrial Institute, and the Agricultural and Mechanical College of Alabama. Bulletin No. 35. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1897.

The Chemical Composition of American Food Materials. Bulletin No. 28 (revised). U. S. Department of Agrioulture, Office of Experiment Stations. Washington, D. C., 1899.

ATWATER, W. O., C. D. WOODS, and F. G. BENEDICT.

Report of Preliminary Investigations on the Metabolism of Nitrogen and Carbon in the Human Organism with a Respiration Calorimeter of special construction. Bulletin No. 44. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1897.

AUSCHER, E. S.

Les céramiques cuisant à haute température. Paris, 1899. 8vo. Ill.

AUSKUNFTSBUCH FÜR DIE CHEMISCHE INDUSTRIE. Herausgegeben von H. Blücher. Wittenberg, 1902.

AUSTEN, SIR W. C. ROBERTS.

An Introduction to the Study of Metallurgy. Fifth edition, revised and enlarged. London, 1902.

On Alloys. Cantor Lectures, delivered before the Society of Arts. London, 1898. 8vo.

AUSTIN, ARTHUR E., and I. H. CORIAT.

Laboratory Manual of Physiological and Clinical Chemistry and Toxicology. Boston, 1898. 12mo.

AUTENNETH, W.

Quantitative chemische Analyse, Gewichtsanalyse, Maassanalyse, und physiologisch-chemische Bestimmungen. Zum Gebrauche in chemischen Laboratorien. Freiburg i- B., 1899. 8vo. Ill.

AUZENAT.

Notions sur les explosifs brisants. Paris, 1901. 8vo. Ill.

BAILEY, E. H. S., and HAMILTON CADY.

Laboratory Guide to the Study of Qualitative Analysis. Fourth edition. Philadelphia, 1901.

BAILEY, G. H.

First Stage Inorganic Chemistry. Second edition, edited by W. Briggs. London, 1901. 8vo. Ill.

Advanced Inorganic Chemistry. Edited by W. Briggs. London, 1898. 8vo.

Tutorial (The) Chemistry. Edited by W. Briggs. Part II. Metals. London, 1898. 8vo. Part I. Non-metals. London, 1900. 8vo.

BAKER, M. N.
Potable Water and methods of detecting impurities. New York, 1899. 16mo.

BAKHUIS-ROOZEBOOM, H. W.
Die Bedeutung der Phasenlehre. Leipzig, 1900. 8vo. Ill.

Die heterogenen Gleichgewichte vom Standpunkte der Phasenlehre. 3 parts. Braunschweig, 1901. 8vo. Ill.

BAKHUIS-ROOZEBOOM, H. W., A. CARNOT, G. CHARPY, ET D'AUTRES.
Contributions à l'étude des alliages. Paris, 1901. 4to. Ill.

BALLAND, A.
La chimie alimentaire dans l'œuvre de Parmentier. Paris, 1902. 8vo.

BARILLÉ, A.
Phosphates de calcium. Action de l'ammoniaque sur leurs dissolutions acides ; action de l'acide carbonique sous pression. Paris, 1900.

BARILLOT, ERNEST.
La distillation des bois. Paris, 1900. 12mo. Ill.

BARINGER, W.
Was muss man von der Chemie wissen? Berlin, 1898. 8vo. Ill.

Wat iedeeren van de scheikunde weten moet? Vrij naar het Duitsch door H. L. van Derk. Amsterdam, 1900. 8vo.

BARLET.
Le vray et méthodique cours de physique resolutive, vulgairement dite Chymie, representé par figures générales et particulières pour connoistre la Théotechnie ergoocomisque, c'est a-dire l'art de Dieu en ouvrage de l'univers. Paris, 1657.

BARNAY, M.
Alcaloïdes usuels, alcaloïdes, glucosides et principes actifs, tirés du règnes végétales. Paris, 1901. 2 vols. 8vo.

BARON, G.
Sucres, mélasses, sels et tabacs destinés aux usages agricoles. Paris, 1899. 8vo.

BARRETO, L. P.
A arte de fabricar o vinho. Sao Paulo, 1901. 8vo.

BARSCHALL, H.
Synthese des Pentantrions. Zur Kenntniss der Reaction saurer Methylengruppen mit Nitroso-dialkylanilin. Berlin, 1902.

BARTH, T.
Analisi del vino ad uso dei chimici e dei legali, traduzione di C. E. Comboni. Seconda edizione. Milano, 1900. 16mo. Ill.

BARTLEY, ELIAS H.
Manual of Clinical Chemistry. Philadelphia, 1899. 12mo. Ill.
Textbook of Medical and Pharmaceutical Chemistry. Fifth edition. London and Philadelphia, 1899. 8vo.

BARTOLOTTI, P.
Trattato elementare di analisi chimica qualitativa dei corpi inorganici. Pisa, 1898. 8vo.

BASIN, J.
Leçons de chimie, Métalloïdes à l'usage des candidats aux écoles du gouvernement. Troisième édition. Paris, 1898. 12mo. Ill.
Métaux. Huitième édition. Paris, 1899. 8vo. Ill.
Parties I et II ; métalloides et métaux. Quatrième édition. Paris, 1900. 8vo. Ill.

BASKERVILLE, CHARLES.
School Chemistry. Richmond, Va., 1899. 12mo.

BASS, W. L.
Sugar Cane, its defectation and elimination, transportation, extraction, clarification, concentration, crystallization, purging, bagging, and handling. In Spanish and English. New York, 1900. Ill. 8vo.
Second edition, New York, 1901. 8vo. Ill.

BATER, CLAUDE E.
Brewing Calculations; Gauging and Tables. London and New York, 1897.

BATES, FRANK H.
Technical Gas Analysis, with figures and tables. Philadelphia, 1901. 12mo.

BATES, R. B.
Tables for Patent Saccharometer. London, 1851.

BATTELLI, A., e STEFANINI, A.
Esposizione critica della teoria della dissociazione elettrica. Lucca, 1900. 8vo.

BAUCHER, F., et G. DOMMERGUE.
Traité pratique d'analyse chimique et microbienne des eaux d'alimentation. Paris, 1898. 8vo.

BAUMHAUER, H.
Leitfaden der Chemie, insbesondere zum Gebrauch an landwirthschaftlichen Lehranstalten. Dritte Auflage. Theil II. Organische Chemie mit besonderer Berücksichtigung der landwirthschaflich-technischen Nebengewerbe. Freiberg, 1900. 8vo. Ill.

BAUR, E.
Bestimmungen von Umwandlungspunkten, Affinitätsgrössen, Dissociationswärmen, etc., auf elektrischem Wege. München, 1897.

BAYARD.
See Colson, R.

BECKER, H.
Manual d'électro-chimie et d'électro-métallurgie. Paris, 1898. 8vo.

BECQUEREL, H.
Electrochimie. Rapports du Jury international de l'Exposition universelle de 1900 à Paris. Paris, 1901. 8vo.

BEDDOW, FREDERICK.
Organised (The) Science Series. First Stage: Inorganic Chemistry (Practical). For the elementary examination of the Science and Art Department. London, 1898.

BEDEL, H.
Traité complet de la fabrication des liqueurs et des vins dits d'imitation. Paris, 1899. 18mo.

BEECH, FRANKLIN.
Dyeing of Woolen Fabrics. London, 1902. 8vo. Ill.

Dyeing of Cotton Fabrics, a practical handbook for the Dyer and Student. London, 1901. 8vo. Ill.

BEGEER, B. W.

Metallurgy (The) of Gold on "The Rand." A practical treatise on the metallurgical processes in use in the Transvaal, being a description of assaying, milling, cyaniding, refining, and coining. Freiberg, 1898. 8vo. Ill.

BÉGHIN, A.

Analyse du beurre. Paris, 1902.

BÉHAL, A.

Traité de chimie organique d'après les théories modernes. Deuxième édition augmentée. Paris, 1901. 2 vols. 8vo. Ill.

BEHREND, G.

Ueber künstliche Kälteerzeugung und Kälteindustrie. Hamburg, 1898. 8vo.

BEHRENS, H.

Anleitung zur mikrochemischen Analyse. Zweite vermehrte und verbesserte Auflage. Hamburg, 1899. 8vo. Ill.

BEIER, C.

Untersuchung (Die) unserer wichtigsten Nahrungs- und Genussmittel. Leipzig, 1898. 8vo.

BEILSTEIN, F.

Anleitung zur qualitativen chemischen Analyse. Achte Auflage, von E. Schulze und E. Winterstein. Leipzig, 1898. 8vo.

Ergänzungsbände zur dritten Auflage des Handbuchs der organischen Chemie. Herausgegeben von der Deutschen chemischen Gesellschaft, redigirt von Paul Jacobsen. Hamburg, 1901.

BENEDICT, FRANCIS GANO.

Chemical Lecture Experiments. New York, 1901. 8vo.

Elementary Organic Analysis. The determination of carbon and hydrogen. Easton, Pa., 1900. 12mo. Ill.

BENEDIKT, R., and J. LEWKOWITSCH.

Chemical Analysis of Oils, Fats, Waxes, and of the commercial products derived therefrom. Founded on Benedikt's second edition of "Analyse der Fette." Second thoroughly revised and enlarged edition. London and New York, 1898. 8vo.

BENOIT, FÉLIX.

Bauxite et aluminium. Paris, 1902. 8vo.

BERGEY, D. H.
Handbook of Practical Hygiene. Easton, Pa. [1900].

BERGHOF, A.
Die organischen Farbstoffe thierischen und pflanzlichen Ursprungs und deren Anwendung in der Färberei und Zeugdruckerei. Wien, 1901. 8vo.

BERINGER, C. J.
Textbook of Assaying for use of those connected with mines. Sixth edition enlarged. London, 1900. 8vo.

BERMBACH, W.
Die wichtigsten Grundbegriffe der Elektrochemie und ihre Verwertung bei den neueren Theorien der galvanischen Elemente und Akkumulatoren. Nach einer Vortrag. Leipzig, 1900. 8vo.

BERNADOU, J. B.
Smokeless Powder, Nitro-Cellulose and Theory of the Cellulose Molecule. New York, 1901. 8vo. Ill.

BERNAT, DESIDERIUS, und KARL SCHEEL.
Wegweiser für Acetylen-Techniker und Installateure. Halle a. S. 1901. 12mo.

BERNTHSEN, A.
Kurzes Lehrbuch der organischen Chemie. Siebente Auflage, bearbeitet in Gemeinschaft mit E. Buchner. Braunschweig, 1899. 8vo. Ill.

Achte Auflage. Braunschweig, 1902.

Traité élémentaire de chimie organique. Traduit par Choffel et Suais. Paris, 1899.

Trattato di chimica organica. Traduzione con note per cura di A. Mioleti. Milano, 1899. 8vo.

BERSCH, J.
Der rationelle Betrieb der Essigfabrikation und die Controlle derselben. Wien, 1900. 8vo. Ill.

Manufacture of Mineral and Lake Ferment, containing directions for manufacture of all artificial Artists' and Painters' Colours, Enamel Colours, Soot and Metallic Pigments. Translated by A. C. Wright. London, 1901. 8vo.

BERSCH, W.

Fabrikation (Die) von Stärkezucker, Dextrin, Maltosepräparaten, sowie Zuckercouleur und Invertzucker. Wien, 1900. 8vo. Ill.

Moderne (Die) Chemie. Eine Schilderung der chemischen Grossindustrie. Wien, 1899–1900. 8vo. Ill. Three parts.

BERTHELOT, M.

Les carbures d'hydrogène 1851–1901. Recherches expérimentales. Paris, 1901.

Tome I: L'acétylène: synthese totale des carbures d'hydrogène.

Tome II: Les carbures pyrogénés.

Tome III. Combinaisons des carbures d'hydrogène avec l'hydrogène, l'oxygène, les éléments de l'eau.

Chimie végétale et agricole. Paris, 1899. 4 vols., 8vo.

La synthèse chimique. Huitième édition. Paris, 1901.

BERTHELOT, M., et E. JUNGFLEISCH.

Traité élémentaire de chimie organique. Quatrième édition revue et considérablement augmentée. Paris, 1898. 2 vols., 8vo. Ill.

BERTRAN.

Nouveau manuel complet du verrier et du fabricant de glaces et cristaux. Paris, 1900. 2 vols., 18mo. Ill.

BÉTHOUX, V., et J. LAFFON.

Résumés synoptiques de chimie augmentés de nombreux exercises. Paris, 1898. Long 4to.

BEVAN, E. J., and C. F. CROSS.

Researches on Cellulose, 1895–1900. London, 1901.

BEVIER, ISABEL.

Nutrition Investigations in Pittsburg, Pa., 1894–1896. Bulletin No. 52. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1898.

BIAIS.

Traité d'analyse chimique qualitative. Paris, 1900. 16mo.

BIECHELE, MAX.

Die chemischen Processe und stöchiometrischen Berechnungen bei den Prüfungen und Werthbestimmungen der im Arzneibuche für das Deutsche Reich (Vierte Ausgabe) aufgenommenen Arzneimittel. Berlin, 1902. 8vo.

Anleitung zur Erkennung und Prüfung aller im Arzneibuch für das Deutsche Reich (Vierte Ausgabe) aufgenommenen Arzneimittell. Zugleich ein Leitfaden bei Apothekenvisitationen. Zehnte Auflage. Berlin, 1901. 12mo.

Elfte Auflage. Berlin, 1902.

BIEHRINGER, J.

Einführung in die Stöchiometrie, oder die Lehre von der quantitativen Zusammensetzung der Körper und ihren mit dieser zusammenhängenden Eigenschaften. Mit Rechenbeispielen. Braunschweig, 1900. 8vo. Ill.

BIELECKI, J.

Rzut oka na rozw6j Chemii w XIX stulecin. Warszawa, 1901. 8vo.

BIÉTRIX, A.

Contribution à l'étude des dérivés de l'acide gallique. Lyon, 1897. 8vo.

BIGELOW, W. D.

The Composition of American Wines. Washington, 1900.

See in Section VII, Bulletins of the Division of Chemistry.

Foods and Food Control. Washington, 1902. Six parts.

See in Section VII, Bulletins of the Division of Chemistry.

Pure-Food Laws of European Countries affecting American Exports. Bulletin 61. U. S. Department of Agriculture. Washington, D. C. 1901. 8vo.

BIGELOW, W. D. [and others].

Fruits and Fruit Products, chemical and microscopical examination. Washington, 1902.

See in Section VII, Bulletins of the Division of Chemistry.

BILLON, F.

Azufre y sus derivados. Explotacion del azufre nativo y de las piritas: acido sulfurico, etc. Madrid, 1898. 8vo.

Le bois; structure et composition chimique du bois, utilisation du bois comme combustible et des cendres comme source de sels de potasse, distillation du bois, etc. Paris, 1900. 12mo. Ill.

BILLON, F. [Cont'd.]

Cloro y sus derivados. Cloro, hipocloritos, acido clorhidrico, etc Madrid, 1898. 8vo.

Productos nitrados y amoniacales. Amoniaco, nitratos de potasa y sosa, acido nitrico, etc. Madrid, 1898. 8vo.

Sosa y potasa. Sosas naturales, sosa Leblanc, potasas naturales, potasa de Stassfurt, etc. Madrid, 1898. 8vo.

BILTRIS, A. N. H., and A. J. J. VANDEVELDE.

Inleiding tot de studie der analytische Scheikunde. Gent, 1900. 8vo.

BILTZ, HENRY.

Experimentelle Einführung in die unorganische Chemie. Kiel, 1898. 8vo. Ill.

Practical (The) Methods for determining Molecular Weights. Translated by Harry C. Jones and Stephen H. King. Easton, Pa., 1899. 8vo.

Qualitative Analyse unorganischer Substanzen. Leipzig, 1899. 8vo. Ill.

Quantitative Analyse unorganischer Substanzen. Leipzig, 1899. 8vo.

BIRNBAUM, K.

Leitfaden der chemischen Analyse. Siebente Auflage, bearbeitet von E. Dieckhoff. Leipzig, 1900.

BISCAN, W.

Formeln und Tabellen für den praktischen Elektrotechniker. Hilfs- und Notizbuch. Dritte Auflage. Leipzig, 1898. 12mo.

BISCHOF, C.

Gesammelte Analysen der in der Thonindustrie benutzten Mineralien und der deraus hergestellten Fabrikate. Leipzig, 1901.

BISER, BENJAMIN F.

Elements of Glass and Glass-Making. A treatise designed for the practical glass-maker, comprising facts, figures, recipes, and formulas for the manufacture of glass—plain and colored. With an appendix containing useful information pertaining to the subject. Chemically revised by J. A. Koch. Pittsburgh, 1899. 8vo. Ill.

BIZZARRI, D.

Tabelle di analisi chimica qualitativa dei principali corpi inorganici. Secunda edizione, reveduta e corretta. Torino, 1901. 8vo.

BLAIR, ANDREW A.

The Chemical Analysis of Iron. A complete account of all the best known methods for the analysis of Iron, Steel, Pig-iron, Iron Ore, Limestone, Slag, Clay, Sand, Coal, Coke, and Furnace and Producer Gases. Third edition. Philadelphia, 1896. 8vo. Ill.

Fourth edition, Philadelphia, 1901. 8vo. Ill.

BLAISE, F. E.

À travers la matière et l'énergie. Paris, 1902.

BLANC, G.

Étude de l'acide isolauronolique. Constitution de l'acide camphorique, du camphre et de ses dérivés. Paris, 1899. 8vo.

BLAS, C.

Traité de chimie analytique. Quatrième édition, revue, corrigée et augmentée. Louvain, 1901. 3 vols., 8vo.

BLASDALE, WALTER C.

A Description of some Chinese Vegetable Food Materials and their nutritive and economic value. Bulletin No. 68. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1899.

BLAZY, A.

Pétrole (Le) à Bakou et les intérêts françaises au Caucase. Paris, 1902.

BLEIER, O.

Neue gasometrische Methoden. Wien, 1898. 8vo. Ill.

BLOCHMANN, R.

Luft, Wasser, Licht und Wärme. Acht Vorträge aus dem Gebiete der Experimentalchemie. Leipzig, 1899. 8vo. Ill.

BLOCHMANN, REINHART.

Guide to Preparation Work in Inorganic Chemistry. Authorized translation by Jas. Lewis Howe. Lexington, Va., 1902.

BLOUNT, BERTRAM.
Practical Electro-Chemistry. Westminster and New York, 1901. 8vo.

BLOUNT, BERTRAM, and A. G. BLOXAM.
Chemistry for Engineers and Manufacturers. Practical Textbook. London, 1900–1901. 2 vols., 8vo. Ill.

BLÜCHER, H.
Gifte und Vergiftungen, sowie die erste Hilfe im Vergiftungsfällen Leipzig, 1899. 8vo. Ill.
Luft (Die). Ihre Zusammensetzung und Untersuchung, ihre Einfluss und ihre Wirkungen, sowie ihre technische Ausnutzung. Leipzig, 1899. 8vo. Ill.
Wasser (Das). Seine Zusammensetzung und Untersuchung, sein Einfluss und seine Wirkungen, sowie seine technische Ausnutzung. Leipzig, 1900.

BLUM, H.
Beitrag zur Kenntniss der Farbstofftheorie. Basel, 1900.

BOCQUILLON-LIMOUSIN.
Formulaire des alcaloïdes. Deuxième édition. Paris, 1898. 8vo.

BODLÄNDER, G.
Ueber langsame Verbrennung. Stuttgart, 1898. 8vo.
Sammlung chemischer. . . . Vorträge.

BOERO, J.
Fabrication et emploi des chaux hydrauliques et des ciments. Paris, 1901. 8vo. Ill.

BÖTTNER, J.
Obstweinbereitung (Die). Sechste Auflage. Frankfurt a. Oder, 1899. 8vo. Ill.

BODENSTEIN, M.
Gasreactionen in der chemischen Kinetik. Leipzig, 1899. 8vo.

BOEHM, R.
Die Zerlegbarkeit des Praseodyms und Darstellung seltener Erden mit Hülfe einer neuen Trennungsmethode. Halle, 1901. 8vo.

BOEKE, J. D.
Stoechiometrische vraagstukken, ten gebruike bij het onderwijs in de scheikunde. Sesde herzien druk. Alkmaar, 1900.

BÖSSNER, F.
Die Verwerthung der ausgebrauchten Gasreinigungsmassen auf Blutlaugensalz, Ammoniak- und Rhodanverbindungen. Nebst Anhang: Die neuen Methoden der nassen Cyangewinnung aus Leuchtgas. Wien, 1901. 8vo.

BÖTTGER, H.
Lehrbuch der Chemie. Braunschweig, 1902. 8vo. Ill.

BÖTTGER, WILHELM.
Grundriss der qualitativen Analyse vom Standpunkte der Lehre von den Ionen. Leipzig, 1902.

BOIZARD, L.
Notions sur les boissons fermentées. Les alcools et les vinaigres. Paris, 1898. 8vo. Ill.

BOLLEY'S HANDBUCH DER CHEMISCHEN TECHOLOGIE. Herausgegeben von P. A. Bolley und K. Birnbaum, fortgesetzt von C. Engler. Neue Folge. Lunge, G. Die Industrie des Steinkohlentheers und Ammoniaks. Vierte Auflage, von H. Köhler. Vol. II. Braunschweig, 1900. 8vo. Ill.

BOLTZMANN, L.
Vorlesungen über Gastheorie. Theil II. Theorie van der Waals; Gase mit zusammengesetzten Molekülen. Gasdissociation. Schlussbermerkungen. Leipzig, 1899. 8vo.

Leçons sur la théorie das gaz. Traduits par A. Gallotti avec une introduction et des notes par M. Brillouin. Paris, 1902. 8vo. Ill.

BOMBOLETTI, A.
Prime nozioni di analisi chimica qualitativa. Roma, 1898. 8vo.

BONATTI, V.
Nozioni di chimica e di mineralogia. Padova, 1899. 8vo. Ill.

BONAZZI, J.
Gli alimenti in generale ed in particolare quelli di natura vegetale communemente usitati nella nutrizione del bestiame agricolo. Parma, 1899.

BONET, B.
Elementos de quimica organica aplicada a la farmacia. Madrid, 1902. 8vo.

BONJEAN, E.
Traité d'analyse chimique, microbiologique et micrographique des eaux potables. Deuxième édition. Paris, 1899. 8vo. Ill.

BONNEFOI, J.
Combinaisons des sels haloïdes de lithium avec l'ammoniaque et les amines. Paris, 1901. Ill. 8vo.

BONNEL, J. F.
Les atomes et hypothèses dans la géométrie. Troisième édition. Paris, 1899.

BORCHERS, W.
Electrometalurgia. Preparacion de los metales por medio de la corriente electrica. Traducido por L. V. Paret. Madrid, 1899. 4to, Ill.

✓ BORGHT, R. VAN DER.
Beiträge zur Geschichte der Deutschen Reisstärke-Industrie. Berlin, 1899. 8vo.

BORGMANN, J.
Chromgerbung (Die). Berlin, 1902. 8vo. Ill.
Die Feinlederfabrikation in ihrer ganzen Herstellungsweise inclusive der Combinationsgerbung. Berlin, 1900. Roy. 8vo. Ill.

BOSQUI, FRANCIS L.
Practical Notes on the Cyanide Process. New York, 1899. 8vo.

BOTTA, G.
Analisi quantitativa col cannello ferruminatorio. Milano, 1898. 8vo.

BOTTAZZI, FILIPPO.
Trattato di chimica fisiologica per uso dei medici e degli studenti. Milano, 1898. 2 vols., 8vo. Ill.
Physiologische Chemie für Studierende und Aerzte. Deutsch von H. Boruttau. Wien, 1900–1902. 2 vols., 8vo.

BOTTLER, M.
Animalischen (Die) Faserstoffe. Vorkommen und Gewinnung, Eigenschaften und technische Verwendung, Bleichen und Färben derselben. Wien, 1901. 8vo. Ill.

BOUANT, E.

Cours de physique et de chimie. Sixième édition. Paris, 1899. 8vo. Ill.

Neuvième édition. Paris, 1900. 8vo. Ill.

Cours de chimie. Notions générales métalloides, sels, pour la classe de seconde C et D. Paris, 1902. 12mo. Ill.

Éléments de chimie. Notions générales, métalloides, pour les classes de quatrième B et de philosophie. Paris, 1902.

La physique et la chimie du brevet élémentaire de capacité de l'enseignment primaire. Huitième édition. Paris, 1900. 8vo. Ill.

BOUDRÉAUX, C. H.

Traité élémentaire de manipulations chimiques. Troisième édition. Paris, 1898. 8vo. Ill.

BOURSAULT.

Recherche des eaux potables et industrielles. Paris, 1900. 8vo.

BOYLE, ROBERT.

New Experiments and Observations made upon the Icy Noctiluca, imparted in a letter to a friend living in the country. To which is annexed a Chymical Paradox. London. Printed for R. E. for B. Tooke at the Ship in St. Paul's Churchyard. 168½. 12mo. pp. [VI]–150.

Tracts containing: I. Suspicions about some Hidden Qualities of the Air, with an appendix touching celestial magnets and some other particulars. II. Animadversions upon Mr. Hobbes's problemata de vacuo. III. A discourse of the cause of attraction by suction. London, printed by W. G., and are to be sold by M. Pitt, at the Angel against the little north door of St. Paul's church. 1674. 12mo.

BOYLE, R., and E. H. AMAGAT.

Memoirs on the Laws of Gases. Translated and edited by C. Barus. New York, 1899.

Harper's Scientific Memoirs.

BRANNT, WM. T.

India Rubber, Gutta-Percha and Balata: occurrence, geographical distribution and cultivation of rubber plants; manner of obtaining and preparing the raw materials, modes of working and utilizing them, including washing, loss in washing, maceration, mixing, vulcanizing, rubber and gutta-percha compounds, utilization of waste, balata, and statistics of commerce. With numerous tables and diagrams. Philadelphia, 1900. 12mo. Cloth. Ill.

BRANDSTÄTTER, F.

Die Untersuchung der Mineralfarben in den chemisch-praktischen Uebungen an Oberrealschulen. Pilsen, 1900.

BRASCH, R.

Die Anwendung der physikalischen Chemie auf die Physiologie und Pathologie. Wiesbaden, 1901. 8vo.

BRÄUER, P.

Aufgaben aus der Chemie und physikalischen Chemie. Nebst Auflösungen. Leipzig, 1899.

BREARLEY, HARRY, and FRED IBBOTSON.

The Analysis of Steel Works Material. London, New York and Bombay, 1902. 8vo. Ill.

BREDIG, G.

Anorganische Fermente. Darstellung colloidaler Metalle auf elektrischem Wege und Untersuching ihrer katalytischen Eigenschaften. Contactchemische Studie. Leipzig. 8vo. Ill.

Ueber die Chemie der extremen Temperaturen. Leipzig, 1901. 8vo.

BRETON, T. L.

Carbure (Le) de calcium et l'acétylene. Paris, 1897.

BRIGGS, W., and R. W. STEWART.

Advanced Practical Inorganic Chemistry. London, 1900.

Chemical Analysis, qualitative and quantitative. London, 1898. 8vo.
University Tutorial Series.

BRIZARD, L.

Recherches sur la réduction des composés nitrosés du ruthénium et de l'osmium. Paris, 1900. 8vo.

BROQUET, R., et C. DETHIER.

Manuel d'analyse chimique à l'usage des fabricants de sucre. Bruxelles, 1898. 8vo. Ill.

BROWN, WALTER L.

Manual of Assaying Gold, Silver, Copper, Tin, and Lead Ores. Corrected and enlarged by A. B. Griffiths. London, 1898. 12mo.

BRUCH, W.

Biologische (Das) Verfahren zur Reinigung von Abwässern. Berlin, 1899. 8vo.

Brüggemann, H.

Bestimmung von Fuselöl in alkoholischen Flüssigkeiten. Leipzig, 1899. 8vo.

Spinnerei (Die), ihre Rohstoffe, Entwicklung und heutige Bedeutung, Zweite Auflage. Leipzig, 1901. 8vo. Ill.

Brühl, J. W.

Die Pflanzen Alkaloide. In Gemeinschaft mit E. Hjelt und O. Aschan. (Aus: Roscoe-Schorlemmer. Ausführliches Lehrbuch der Chemie.) Braunschweig, 1900. 8vo. Ill.

Chemie der fünfgliedrigen heterocyclischen Systeme mit Kohlenstoff-, Sauerstoff-, Schwefel-, Selen- und Stickstoffatomen. Bearbeitet in Gemeinschaft mit E. Hjelt und O. Aschan. Braunschweig, 1898. 8vo. Ill.

Chemie der sechsgliedrigen heterocyclischen Systeme. Bearbeitet in Gemeinschaft mit E. Hjelt und O. Aschan. Braunschweig, 1899. 8vo.

Bruni, G.

Ueber feste Lösungen. Stuttgart, 1901. 8vo. Ill.

Sammlung chemischer und chemischtechnischer Vorträge.

Brunner, H.

Guide de l'analyse chimique qualitative des substances minérales et des acides organiques et alcaloïdes. Deuxième édition, revue et augmentée. Paris, 1898. 8vo.

Bryant, E. G.

Graduated (A) Course of Chemical Problems. Birmingham, Leicester, and Leamington, 1897.

Bryk, E.

Kurzes Repetitorium der Chemie. Nach den Werken und Vorlesungen von Arnold, Bernthsen, Fischer, Gorup-Besanez, Graham-Otto u. a. bearbeitet. Dritte vermehrte und verbesserte Auflage.

Theil I. Anorganische Chemie. Leipzig, 1898.

Theil II. Organische Chemie. Ausgabe für Chemiker. Leipzig, 1901. 12mo.

Vierte Auflage. Leipzig, 1902.

BUCHANAN, J. F.

Brassfounders' Alloys. Practical handbook containing useful tables, notes, and data, with descriptions of approved and modern methods and appliances for melting and mixing Alloys. London, 1901. 8vo.

BUCHKA, K. VON.

Lehrbuch der analytischen Chemie Zweite, Auflage. Wien, 1901. 8vo.

Die Nahrungsmittelgesetzgebung im Deutschen Reiche. Sammlung der Gesetze und wichtigsten Verordnungen betreffend den Verkehr mit Nahrungsmitteln, Genussmitteln und Gebrauchsgegenständen, nebst den amtlichen Anweisungen zur chemischen Untersuchung derselben. Berlin, 1901. 8vo.

BUCKINGHAM, EDGAR.

An Outline of the Theory of Thermodynamics. New York, 1900. 8vo. Ill.

BÜCHELER, MAX.

Leitfaden für den landwirthschaflichen Brennereibetrieb. Braunschweig, 1898. 8vo. Ill.

Manuel de distillerie. Guide pratique pour l'alcoolisation des grains, des pommes de terre et des matières sucrées. Traduit de l'allemand et augmenté par L. Gautier. Paris, 1899. 8vo. Ill.

BÜCHELER, MAX, et E. LÉGIER.

Traité de la fabrication de l'alcool. Paris [?], 1899. 2 vols., 8vo. Ill.

BÜLOW, C.

Chemische Technologie der Azofarbstoffe mit besonderer Berücksichtigung der deutschen Patentlitteratur. Part II. Fabrikation und Anwendung der Azofarbstoffe, übersichtlich geordnet auf Grund der "Natürlichen Systematik der Azofarbstoffe." Leipzig, 1898. 8vo.

BUJARD, A.

Leitfaden der Pyrotechnik ; Einführung in die Chemie der wichtigsten Rohmaterialen und Sprengstoffe der Kunstfeuerwerkerei. Stuttgart, 1899. 8vo. Ill.

BUJARD, A., und E. BAIER.
Hilfsbuch für Nahrungsmittelchemiker zum Gebrauch im Laboratorium für die Arbeiten der Nahrungsmittelkontrole, gerichtliche Chemie und alle Zweige der öffentliche Chemie. Zweite neugearbeitete Auflage. Berlin, 1900. 8vo. Ill.

BUNGE, G.
Text-Book of Physiological and Pathological Chemistry. Second English edition translated from the fourth German edition by Florence A. Starling and edited by Ernest H. Starling. London and Philadelphia, 1902. 8vo. Ill.

BURBURY, S. H.
A Treatise on the Kinetic Theory of Gases. London and New York, 1899. 8vo.

BURGH, N. P.
A Treatise on Sugar Machinery, including the process of producing sugar from the cane. Refining moist and loaf sugar. London, 1863.

BURSTYN, M.
Elektrotechnischer Unterricht und Anleitung zum Betriebe elektrischer Anlagen insbesondere auf Kriegsschiffen. Zweite Auflage. Pola, 1898. 8vo.

BUSCH, M.
Die Constitution der Urazine. Pr. Luitp. Festschrift. Erlangen, 1901.

BUSS, F.
Dynamische Untersuchungen über die Bildung von Amidoazofarbstoffen. Darmstadt, 1898. 8vo.

BUSSARD, B., et H. DUBOIS.
Leçons élémentaires de chimie. Paris, 1898. 8vo. Ill.

BUTTERFIELD, W. J. A.
Chemistry (The) of Gas Manufacture. Practical handbook on production, purification, testing of illuminating gas; assay of bye-products of gas manufacture. Second edition with new chapter on acetylene. London, 1898. 8vo. Ill.

CADET, J., et G. RODIGO.
Analyses nécessaires au chimiste métallurgiste, suivies d'une méthode générale d'analyse qualitative et d'une étude des travaux pratiques effectués dans un laboratoire. Paris, 1901. 8vo. Ill.

CALUGAREANU, D.
Recherches de physiologie expérimentale et de chimie physique sur l'hématolyse. Tours, 1902. 8vo.

CALZAVARA, V.
L'industria del gaz illuminante. Milano, 1899. 16mo. Ill.

CALZOLARI. F.
Nuove anomalie crioscopiche dovute a formazione di solutione solide. Ferrara, 1899.

CAMPBELL, JOSEPH.
Simple Tests for Minerals; or, Every man his own analyst. With tables and illustrations. Seventh thousand. Sydney, 1898. 12mo.

CAMPREDON, L.
Analyse chimique et essais des combustibles. Paris, 1899. 8vo.
Deuxième édition. Paris, 1902. 8vo.

CANTAMESSA, F.
Vino (Il), sua produzione, conservazione e commercio. Torino, 1899. 8vo. Ill.

CAPELLARO, GIUSEPPE.
Manuale dell'uomo industrioso, ossia raccolta degli ultimi ritrovati della scienza chimica applicabili alle diverse industrie. Milano, 1898. 16mo.

CAPEL, G. C. C.
De venificiis apud Romanos. Hagæ-Comitium, 1900. 8vo.

CAPELLE, EDOUARD.
L'Éclairage à l'acétylène. Paris, 1898. 8vo. Ill.
L'Éclairage et le chauffage par l'acétylène, étude technique et pratique. Nouvelle édition. Paris, 1902. 8vo. Ill.

CARBAYO, J. M. B.
Tratado de quimica inorganica en armonia con los adelantos modernos de la ciencia. Madrid, 1899. 4to.

CARLES, P.
Dérivés (Les) tartriques du vin. Deuxième édition. Bordeaux, 1898. 8vo.

CARMODY, P.
Elementary Chemical Analyses. Distinguishing Tables and Tests. Trinidad, 1902.

CARNOT, ADOLPHE.
Traité d'analyse des substances minérales. Tome 1. Méthodes générales d'analyse qualitative et quantitative. Paris, 1898. 8vo. Ill.
To be completed in three volumes.

CARNOT, CLAUSIUS and THOMSON.
The Second Law of Thermodynamics. Edited by W. F. Magie. New York, 1899.
Harper's Scientific Memoirs.

CARR, OMA.
Analyses of Tanning Materials and Hide Powder Tests. Proceedings of the Meeting of the Association of Agricultural Chemists, held at Washington, D. C., November 16, 1900, including Referee's Report, and papers by Wiley and Krug. Boston, 1901.

CARSTENSEN, J.
Skematisk oversigt oven den uorganiske chemie, tel brug ved repetitionen. Efter S. M. Jörgensen og O. T. Christensens Laereböger. Kjøbenhavn, 1897.

CARUSO, F. M.
Nuovi rapporti tra i pesi atomici e specifici dei corpi indecomposti e le altre proprietà della materia. Palermo, 1897. 8vo. 2 plates.

CASORIA, EUGENIO.
Guida all' analisi chimica qualitativa dei corpi inorganici. Milano, 1901. 16mo.

CASORIA, E.
L'acqua iodica nella valle di Sarno (provincia di Salerno); studi e ricerche chimiche. Firenze, 1899. 8vo.

CASSAUX, C. DE.
Essai sur l'art de cultiver la canne et d'en extraire le sucre. Paris, 1781.

CASTO, L. S.
Tratado completo de vinification y reposteria. Elaboracion de todas clases de licores y vinagre artificial. Barcelona, 1899. 8vo.

CAUBET, F.
Liquéfaction des mélanges gazeux. Paris, 1901. 8vo. Ill.

CAURO, J.
La liquéfaction des gaz. Méthodes nouvelles, applications. Paris, 1899.

CAUSSÉ.
De la constitution des alaloïdes végétaux. Paris, 1899.

CAVALIER, J.
Recherches sur les éthers phosphoriques. Rennes, 1898. 8vo.

CAZALIS, F.
Traité pratique de l'art de faire le vin. Deuxième édition. Montpellier, 1899. 8vo. Ill.

CÉSARO, G., et P. BUSSY.
Exposé élémentaire des principes de la saccharimétrie optique. Paris, 1902. 8vo. Ill.

CHABERT.
L'acidimétrie à la propriété. Paris, 1901. 8vo.

CHAPELLE, PH.
Étude du pouvoir réducteur de quelques sucres. Paris, 1899. 8vo.

CHARABOT, E.
Genèse des composés terpéniques dans les végétaux. Paris, 1900.
Les parfums artificiels. Musc artificiel, terpinéol, acétate de lynalyle, rhodinol, ocillet, etc. Paris, 1899. 16mo. Ill.

CHARABOT, E., J. DUPONT et L. PILLET.
Les huiles essentiels et leurs principaux constituants. Paris, 1899. 8vo. Ill.

CHEETHAM, T. A.
Elementary Chemistry, practical and theoretical. 2 vols. 8vo.
First Year's Course. London, 1898.
Second Year's Course. London, 1900.

HEMISCHE RECEPTE. Deutsche Ausgabe der von der Atlas Chemical Company in Sunderland, England, herausgegebenen Englischen Ausgabe "Chemical Recipes." Leipzig, 1901.

HEMISCHE UND MEDICINISCHE UNTERSUCHUNGEN. Festschrift zur Feier des 60. Geburtstages von M. Joffé. Mit Beiträgen von P. Baumgarten, Lassar-Cohn, E. von Leyden, W. Lossen u. A. Braunschweig, 1901. 8vo. Ill.

HEMISTRY MATRICULATION MODEL ANSWERS. London University Papers from June, 1888, to January, 1898, with answers. London, 1898. 8vo.

HEMISTRY MATRICULATION PAPERS from June, 1876, to January, 1902. London, 1902. 8vo.

HEMISTRY MATRICULATION PAPERS from June, 1875, to January, 1898. The last 46 papers set at the Matriculation Examination of the University of London. London, 1898. 8vo.

HEMISTRY PAPERS, last 50 years set at the Matriculation Examination of London University, with model answers to paper of January. London, 1900. 8vo.

HESNEAU, G.

Lois générales de la chimie. Introduction du cours de chimie générale professé à l'École nationale des mines. Paris, 1899. 8vo. Ill.

HIMICA IGIENICA. Corso di lezioni esposte nella R. Università di Modena nell' anno scolastico 1897–1898. Modena, 1898. 8vo.

HITTENDEN, R. H.

Studies in Physiological Chemistry. Being reprints of the more important studies issued from the Laboratory of Physiological Chemistry. Sheffield Scientific School of Yale University during the years 1897–1900. New York, 1901. 8vo.

HRISTENSEN, C.

Uorganisk Kemi. Ottende Udgave. Kjøbenhavn, 1901.

HRISTENSEN, ODIN T., og C. A. F. TUXEN.

Övelser i kvantitativ og agrikulturkemisk analyse. Kjøbenhavn, 1898. 8vo.

COHEN, E.

Experimentaluntersuchung über die Dissociation gelöster Körper in Alkohol-Wassergemischen. Rotterdam, 1898. 4to. Ill.

Vorträge für Aertzte über physikalische Chemie. Leipzig, 1901.

Voordrachten over physische Scheikunde voor Geneeskundigen. Amsterdam, 1901. 8vo.

COHEN, JULIUS B.

Practical Organic Chemistry for advanced students. London and New York, 1901. 8vo. Ill.

Theoretical Organic Chemistry. London and New York, 1902.

COHN, ALFRED I.

Indicators and Test Papers, their source, preparation, application, and tests for sensitiveness. A résumé of the current facts regarding the action and application of indicators and test papers which have been proposed from time to time and are in present use in chemical manipulation, with a tabular summary of the application of indicators, designed for the use of chemists, pharmacists, and students. Second edition, revised and enlarged. New York and London, 1902.

COIGNET, F.

Traitement des quartz aurifères. Paris, 1900. 8vo. Plates.

COLBY, A. L.

Review and Text of the American Standard Specification for Steel. Adopted in August, 1901, by the American Section of the International Association for Testing materials. Second edition, rewritten and containing the revised Text of the Standard Specifications. Easton, 1902. 12mo.

COLLIER, PETER.

Sorghum, its culture and manufacture. Cincinnati, 1884.

COLLINS, H. F.

The Metallurgy of Lead and Silver. Being one of a Series of Treatises on Metallurgy written by Associates of the Royal School of Mines. Edited by W. C. Roberts-Austen.

Part I. Lead. The Manufacture of Lead with sections on Smelting and Desilverization, and chapters on the Assay and Analysis of the Materials involved. London, 1899. 8vo. Ill.

CLAUSS, F.

Wassergas-Erzeugung in continuirlichem Betrieb. Nebst einem Anhang: Ueber die nothwendigen Verluste beim Dellwick Process. Berlin, 1900.

CLAUTRIAU, G.

La chimie dans la vie quotidienne. Bruxelles, 1899. 8vo.

CLERC, L. P., et G. H. NIEWENGLOWSKI.

Chimie (La) du photographe. I. Notions générales de chimie photographique. Paris, 1898. 12mo.

Deuxième édition. Paris, 1901. 12mo. Ill.

Vol. III. Préparation des surfaces sensibles. Paris, 1899. 12mo. Ill.

Vol. IV. Les bains photographiques. Paris, 1900. 12mo. Ill.

Vol. V. Traitement des residus. Paris, 1900. 12mo. Ill.

CLOUTH, F.

Gummi, Guttapercha und Balata. Ihr Ursprung und Vorkommen, ihre Gewinnung, Verarbeitung und Verwendung. Leipzig, 1899. 8vo. Ill.

CLOWES, FRANK.

A Treatise on Practical Chemistry and Qualitative Analysis, adapted for use in the laboratories of colleges and schools. Seventh edition. London, 1899.

CLOWES, FRANK, and J. BERNARD COLEMAN.

Quantitative Chemical Analysis, adapted for use in the laboratories of colleges and schools. Fifth edition. London, 1900. 8vo. Ill.

COBLENTZ, VIRGIL.

A Manual of Volumetric Analysis. Treating on the Subjects of Indicators, Test-Papers, Alkalimetry, Acidimetry, Analysis by Oxidation and Reduction, Iodometry, Assay Processes for Drugs with the Titrimetric Estimation of Alkaloids, Estimation of Phenol, Sugar. Tables of Atomic and Molecular Weights. Philadelphia, 1901.

COFFIGNAL, L.

Verres et émaux. Paris, 1900. 8vo. Ill.

COFFIGNIER.

Manuel du fabricant de vernis. Paris, 1902. 16mo. Ill.

CORBIN, H. E., and A. M. STEWART.

Handbook of Physics and Chemistry adapted to first examination of conjoint Examining Board of Royal College of Physicians and Surgeons. London, 1899. 8vo. Ill.

CORDEMOY, H. DE.

Gommes, resines d'origine exotique et végétaux qui les produisent, particulièrement dans les colonies françaises. Paris, 1900. 8vo. Ill.

COSSA, A.

Prime nozioni elementari di elettrochimica. Milano, 1901. 16mo.

COUCOU.

Les pétroles de Roumanie. Paris, 1901.

COUPIN, H.

Diastases (Les) ou ferments solubles. Paris, 1899. 8vo. Ill.

COUSINS, H. H.

Chemistry of the Garden. London, 1898.

COWELL, W. B.

Pure Air, Ozone, and Water; a practical treatise of their utilization and value in oil, grease, soap, paint, glue, and other industries. London, 1900. 12mo. Ill.

CROBAUGH, FRANK L.

Methods of Chemical Analysis and Foundry Chemistry. Cleveland, Ohio, 1901.

CROLAS, F., et MOREAU.

Pharmacie chimique. Paris, 1898. 8vo.

Précis de pharmacie chimique. Deuxième édition. Paris, 1902.

CROOK, JAMES K.

The Mineral Waters of the United States and their therapeutic uses; with an account of the various mineral-spring localities, . . . etc., and an Appendix on Potable Waters. New York, 1899, 8vo.

CROSS, C. F., and E. J. BEVAN.
Researches on Cellulose, 1895–1900. London, 1901. 8vo.
Manuel de la fabrication du papier, traduit de la deuxième édition anglaise par L. Desmarest. Paris, 1902. 8vo. Ill.
La cellulose. Traduit d'après l'édition anglaise de 1895 par R. G. Lévy et Thomas. Paris, 1900. 8vo. Ill.

CROSSLEY, ALFRED.
Tables of Analysis of Clays. Second edition. Indianapolis, 1900. 12mo.

CROUZEL, ED.
Nouvelle méthode de dosage des principaux éléments actifs fertilisants du sol. Deuxième édition. Paris, 1902. 16mo.

CUADRADO, G. A.
Necesidades de la industria azucarcra en Cuba. Habana, 1901.

CUKROWNICTWO Podręcznik dla, pracujących w cukrowniach i rafineryach. Warsawa, 1899. 3 vols., 8vo.

CUNIASSE, L., et R. ZWILLING.
Modes opératoires des essais du commerce et de l'industrie. Leçons pratiques d'analyse chimique faites aux laboratoires Bourlouze. Paris, 1899. 8vo. Ill.

CURLE, J. H.
Gold Mines of the World. Written after an inspection of the mines of the Transvaal, Rhodesia, India, Malay Peninsula, West Australia, Queensland, Victoria, New South Wales, Tasmania, New Zealand, British Columbia, the Klondyke, United States, Alaska, and Mexico. With plans and folding plates. Second edition. London, 1902. 8vo.

DACCOMO, G.
Lezioni di chimica organica farmaceutica, esposte nella R. Università di Modena nell'anno scolastico 1897–1898. Modena, 1898. 4to.

DAGUERRE.
See Colson, R.

DAMMER, O.
Handbuch der anorganischen Chemie. IV Band. Die Fortschritte der anorganischen Chemie in den Jahren 1892–1902. Stuttgart, 1903. Roy. 8vo.

DAMMER, O. [Cont'd.]
Handbuch der chemischen Technologie. Vol. v: Gespinnstfasern; Bleicherei, Färberei, Gerberei, Milch, Fleisch, Abwässer, Dungemittel, Sprengstoffe, Galvanoplastik, Elektrochemie, u. s. w. Stuttgart, 1898. 8vo. Ill.

DANNEMANN, F.
Leitfaden für den Unterricht im chemischen Laboratorium. Zweite Auflage. Hannover, 1899. 8vo.

DAVIS, GEO. E.
Handbook of Chemical Engineering. Parts I–XII. Manchester, 1901. 8vo.

DEFAYS, J., et H. PETIT.
Étude pratique sur les différents systèmes d'éclairage (Gaz acétylène, pétrole, alcool, électricité). Paris, 1902. 16mo.

DEHÉRAIN, P. P.
Traité de chimie agricole. Développement des végétaux, terre arable, amendement et engrais. Deuxième édition, revue et augmentée. Paris, 1901. 8vo. Ill.

DELÉPINE, M.
Composés endothermiques it exothermiques. Paris, 1899. 8vo.
Amines et amides dérivés des aldéhydes. Paris, 1898. 8vo.

DEJONGHE, G.
Traité complet théorique et pratique de la fabrication de l'alcool et des levûres. Lille, 1899–1901. 2 vols., 8vo. Ill

DELESSARD, E.
L'industrie des matières textiles à l'Exposition de 1900. Paris, 1902. 8vo. Ill.

DELL' ERBA, L.
Chimica (La) dei vigli. Milano, 1898. 8vo.

DELMART, A.
Die Stück- und Kammgarn-Färberei in ihrem ganzen Umfange. Leipzig, 1900–190[?]. 8vo. Ill. With 1,200 dyed samples.

DENIGÉS, G.
Précis de chimie analytique. Lyon, 1898. 8vo. Ill.
Deuxième édition. Bordeaux, 1902.

DENNIS, L. M., and F. W. CLARKE.
Elementary Chemistry. New York, 1902. Laboratory Manual [to accompany the above]. New York, 1902.

DENNSTEDT, M.
Chemisches Staats-Laboratorium in Hamburg. Bericht für 1895. Hamburg, 1896.
Entwicklung (Die) der organischen Elementaranalyse. Stuttgart, 1899. 8vo.
Sammlung chemischer. . . . Vorträge.

DEPIERRE, J.
Traité de la teinture de l'impression des matières colorantes artificielles. Vol. IV. Paris, 1901. 8vo. Ill.

DESCHAMPS, JULES.
Les gazogènes. Paris, 1902. 8vo. Ill.

DEVENTER, CH. M. VAN.
Physikalische Chemie für Anfänger. Mit einem Vorvort von J. H. van't Hoff. Zweite Auflage besorgt von E. Cohen. Amsterdam, 1901.
Physical Chemistry for Beginners; with a preface by J. H. van't Hoff. Translated by R. A. Lehfeldt. London, 1898. 8vo.
Physical Chemistry for Beginners. With an introduction by J. H. van't Hoff. Authorized American edition from the German, translated by Bertram B. Boltwood. New York, 1899. 12mo.

DIBDIN, W. J.
Lime, Mortar, Cement, their characteristics and analyses. Artificial stone, asphalt. London, 1901. 8vo.
Purification (The) of Sewage and Water. Second edition. London, 1898. Roy. 8vo. Ill.

DIENERT, F.
Sur la fermentation du galactose et sur l'accoutumance des levures à ce sucre. Sceaux, 1900.

DIETERICH, K.
Analyse der Harze, Balsame und Gummiharze nebst ihrer Chemie und Pharmacognosie. Zum Gebrauch in wissenschaftlichen und technischen. Untersuchungslaboratorien unter Berücksichtigung der älteren und neuesten Litteratur herausgegeben. Berlin, 1900.

DITTE, A.

Introduction à l'étude des métaux. Leçons professées à la Faculté des Sciences [de l'Université de Paris]. Paris, 1901. 8vo.

DITTRICH, C.

Die Uranylsalze von physikalisch- chemischen Standpunkte aus betrachtelt. Leipzig, 1900. 8vo.

DOBBIN, L.

Arithmetical Exercises in Chemistry. A series of elementary lessons on chemical calculation. With a preface by C. Brown. Third edition. London, 1899. 8vo.

DOIJER VAN CLEEFF, G.

Leerboek der scheikunde. Tweede druk. Haarlem, 1898. 8vo. Ill.

Handleiding bij het qualitatief scheikundig onderzoek. Erste stukje, Onderzoek van zouten. Derde druk, Utrecht, 1893; Vierde druk, 1897. Tweede stukje Onderzoek van mengsels. Sesde druk. Utrecht, 1895.

DOMAN, W.

Acetylene Gas; its production and use. London, 1902.

DOMKE, W.

Kurzgefasstes chemisches Repetitorium für Mediciner. Würzburg, 1899. 8vo.

DOMMER, F.

Calciumkarbid und Acetylen, ihre Eigenschaften, Herstellung und Verwendung. Uebersetzt von W. Landgraf. München, 1898. 8vo.

DOMMERGUE, G.

Traité pratique d'analyse chimique, microscopique et bactériologique des urines. Paris, 1901. 12mo. Ill.

DONATH, E., und B. M. MARGOSCHER.

Das Wollfett, seine Gewinnung, Zusammensetzung, Untersuchung Eigenschaften und Verwerthung. Stuttgart, 1901. 8vo. Ill.

DONATH, ED., und K. POLLAK.

Neuerungen in der Chemie des Kohlenstoffes und seiner anorganischen Verbindungen. Stuttgart, 1898. 8vo.

Sammlung chemischer . . . Vorträge.

DOOLAN, LEONARD W.
The Bible Chemistry Course. Madison, Indiana, 1902.

DOUGLAS, C. C.
Chemical and microscopical aids to Clinical Diagnostics. Guide to urinary, gastric, and other analyses employed in practical medicine. London, 1899. 8vo. Ill.

DREVET, G.
Tableaux synoptiques pour l'analyse des urines. Paris, 1899. · 16mo.

DREYFUS, W. E.
Ueber Tragant. Ein Beitrag zur Kenntniss der Pflanzenscheime. München, 1900.

DRINCOURT, E.
Cours de physique et de chimie à l'usage des candidats à l'École de Saint Cyr. Paris, 1900. 18mo.
Cours de chimie (seconde C. D.). Paris, 1902.

DUCRU, O.
Recherches sur les arséniates ammoniacaux de cobalt et de nickel. Application au dosage de l'arsénic. Paris, 1900. 8vo.

DUHEM, P.
Une science nouvelle—la chimie physique. Paris, 1899. 8vo.
Loi (La) des phases. Paris, 1898.
Mixte (Le) et la combinaison chimique ; essai sur l'évolution d'une idée. Paris, 1902.
Potentiel (Le) thermodynamique et les applications à la mécanique chimique et à l'étude des phénomenes électriques. Seconde édition. Paris, 1895. 8vo.
Tension (La) de dissociation avant H. Sainte Claire Deville. De l'influence de la pression sur les actions chimiques, par Georges Aimé (1837). Avec une introduction par P. Duhem. Paris, 1899.
Théorie thermodynamique de la viscosité du frottement et des faux équilibres chimiques. Paris, 1896. 8vo.
Thermochimie ; à propos d'un livre récent de M. Berthelot. Paris, 1897. 8vo.
Thermodynamique et chimie. Leçons élémentaire à l'usage des chimistes. Paris, 1902. 8vo. Ill.

DUHEM, P. [Cont'd.]
Traité élémentaire de mécanique chimique, fondée sur la thermodynamique. Paris, 1899. 8vo. Ill.
Tome III. Les mélanges homogènes; les dissolutions.
Tome IV. Les mélanges doubles. Index.
Usines et laboratoires. Paris, 1899. 8vo.

DULK, L.
Atomgewicht oder Atomgravitation? Breslau, 1898. 8vo. Ill.

DÜLL, E.
Wiederholungs- und Uebungsmaterial für den Unterricht in Chemie und Mineralogie. München, 1900. 8vo.

DÜNKELBERG, F. W.
Die Technik der Reinigung städtischer und industrieller Abwässer durch Berieselung, und Filtration. Braunschweig, 1900. 8vo. Ill.

DUMAS, L.
Aide-mémoire de chimie, de minéralogie et de météorologie. Namur, 1898. 12mo.

DUMESNIL, E.
Sur une methode de détermination de la densité des corps solides applicable à l'étude des précipités. Lons-le-Saunier, 1901. 8vo.

DUMESNY.
Conservation des bois. Paris, 1901. 16mo. Ill.

DUPARC, LOUIS, EMILE DEGRANGE, and ALFRED MOUNIER.
Traité de chimie analytique qualitative. Geneva, 1900.

DUPONT, J.
L'industrie des matières colorantes. Paris, 1901. 18mo.

DUPONT, J., et P. FREUNDLER.
Manuel opératoire de chimie organique. Paris, 1899. 8vo. Ill.

DUPLAIS, P. (*aîné*).
Traité de la fabrication des liqueurs et de la distillation des alcools. Septième édition revue par Arpin et E. Portier. Paris, 1899. 2 vols., 8vo. Ill.

DUPRÉ, A., and H. WILSON HAKE.
A Short Manual of Inorganic Chemistry. Third edition, thoroughly revised and partly rewritten with special reference to the periodic law. London and Philadelphia, 1901. 8vo.

DUPUY, EDMUND, and H. RIBAUT.
Cours de pharmacie. Vol. III. Pharmacie chimique minérale. Paris, 1902. 8vo. Ill.

DUPUY, E.
Essai de classification des médicaments chimiques, organiques. Paris, 1898. 8vo.

DYE, FREDERICK.
Lighting by Acetylene; a treatise for the practical lighting engineer. Containing elementary information and details for those about to take up the work. London and New York, 1902.

DYMOND, T. S.
Experimental Course of Chemistry for Agricultural Students. London, 1898. 8vo.
Second edition. London, 1902. 8vo. Ill.

DYSON, S. S.
Practical Testing of Raw Materials. A Concise Handbook for Manufacturers, Merchants, and Users of Chemicals, Oils, Fuels, Gas Residuals, and By-Products, and Paper-Making Materials, with Chapters on Water Analysis and the Testing of Trade Effluents. London, 1901. 8vo. Ill.

DZIEGIELEWSKI, J. VON.
Obergärige Biere. Herstellung verschiedener Biersorten und Anwendung von Rohfrucht. Stuttgart, 1898. 8vo.

ECALLE.
Nouveau procédé de dosage des alcaloïdes. Paris, 1901.

EDWARDS, FRED. G.
Chemistry an Exact Mechanical Philosophy. London, 1901. 8vo. Ill.

EGER, L.
Destillationsproducte (Die) des Erdöls in ihrer Verwendung als Leuchtöl. Leipzig, 1899. Ill.

EICHLOFF, R.

Technik (Die) der Milchprüfung. Anleitung zur selbstständigen Ausführung von Milchuntersuchungen. Bremen, 1898. 8vo. Ill.

EIDHERR, E.

Chemisch-technische (Der) Brennereileiter. Populäres Handbuch der Spiritus- und Presshefefabrikation. Vierte vollständig umgearbeitete Auflage. Wien, 1898. 8vo. Ill.

EISSLER, M.

The Cyanide Process of Gold Extraction, including its practical application on the Witwatersrand Gold Fields in South Africa. Third edition, revised and enlarged. London, 1902. 8vo.

The Metallurgy of Gold. A practical treatise on the metallurgical treatment of gold-bearing ores, including the processes of concentration and chlorination, and extraction by cyanide, and the assaying, melting and refining of gold. Fifth edition, revised, enlarged and re-arranged. London, 1900. 8vo. Ill.

Hydrometallurgy of Copper. Account of processes adopted in hydrometallurgical treatment of cupriferous ores, including the manufacture of Copper-Vitriol. London, 1902. 8vo.

ELBS, K.

Uebungsbeispiele für die elektrolytische Darstellung chemischer Präparate. Halle, 1902. 8vo. Ill.

ELIOT, C. W., and F. H. STORER, and W. R. NICHOLS; also W. B. LINDSAY.

The Compendious Manual of Qualitative Chemical Analysis. Ni[illegible]eteenth edition, newly revised. New York, 1899. 8vo. Ill.

ELLIOT, ARTHUR H., and GEORGE A. FERGUSON.

A System of Instruction in Qualitative Chemical Analysis. Th[illegible] edition. New York, 1899.

ELLIS, GEO. H.

White Paint Analysis: A Collection of Notes on the Chemi[illegible] Analysis of White and Tinted Paints, with detailed and pr[illegible]tical methods given for the analysis of mixed paints. A use[illegible] book for the Chemist and Paint Manufacturer. Evanston, I[illegible] 1899. 8vo. Ill.

ELSNER, F.

Praxis (Die) des Chemikers bei Untersuchung von Nahrungsmitteln, Genussmitteln und Gebrauchgegenständen, bei hygienischen und bakteriologischen Untersuchungen, sowie in der gerichtlichen und Harnanalyse. Siebente Auflage. Hamburg, 1899. 8vo. Ill.

EMSMANN, H., and O. DAMMER.

Illustrirtes Experimentirbuch. Practische Anleitung zum unterhaltenden und belehrenden Experimentiren auf den Gebieten der Physik und Chemie. Siebente Auflage. Bielefeld, 1899. 8vo. Ill.

ENGELHARDT, A.

Chemisch-technisches Recept- Taschenbuch. Enthaltend 1800 Vorschriften und Fabrikationsverfahren aus dem Gebiete der chemisch-technischen Industrie und Gewerbskunde. Vierte Auflage. Leipzig, 1900. 8vo.

ENGELHARDT, V.

Elektrolyse (Die) des Wasser, ihre Durchführung und Anwendung. Halle, 1902. 8vo. Ill.

EPERNAY, E. R. D'.

Note sur la fabrication des vins mousseux dans les pays chauds. Paris, 1899.

EPHRAIM, JULIUS.

Ueber den Neuheitsbegriff bei chemischen Erfindungen. Stuttgart, 1898. 8vo.

Sammlung chemischer . . . Vorträge.

ERDMANN, H.

Anleitung zur Darstellung chemischer Präparate. Ein Leitfaden für den praktischen Unterricht in der anorganischen Chemie. Zweite Auflage. Frankfurt a. M., 1899. 8vo. Ill.

Introduction to Chemical Preparations. A Guide in the practical teaching of inorganic chemistry. Authorized translation from the second German edition by Frederick L. Dunlap. New York and London, 1900. 12mo.

Lehrbuch der anorganischen Chemie. Braunschweig, 1898. 8vo. Ill.

Zweite Auflage. Braunschweig, 1900.

Dritte Auflage. Braunschweig, 1902.

ERDMANN, O. L., und C. R. KÖNIG.

Grundriss der allgemeinen Waarenkunde, unter Berücksichtigung der Mikroscopie und Technologie. Dreizehnte Auflage von E. Hanausek. Leipzig, 1900. 8vo. Ill.

ERFURT, J.

Das Färben des Papierstoffs. Zweite vollkommen umgearbeitete Auflage. Berlin, 1900. 8vo. 145 specimens.

Dyeing of Paper Pulp. Practical Handbook, translated and edited, with additions, by J. Hübner. London, 1901. Imp. 8vo. Ill. and patterns.

ERLENMEYER, E.

Bemerkungen über Examina und Ausbildung der technischen Chemiker. Heidelberg, 1898. 8vo.

ERP, H. VAN.

Beginselen der Chemie in verband met Technologie, Mineralogie, Geologie en Fysiologie. Dree deelen. Amsterdam, 1902. 8vo. Ill.

Handleiding bij de kvalitatieve chemische analyse van algemeen voorkomende zelfstandigheden. Samengesteld ten dienste van het middelbaar onderwijs en voor zelfoefening. Amsterdam, 1900. 8vo.

EVANS, P. N.

Introductory course in quantitative Chemical Analysis. Boston, 1897. 8vo.

EVESQUE, P. E.

Les vins d'Algérie. Étude chimique, agricole et industrielle. Paris, 1902. 8vo. Ill.

FAIDEAU.

Chimie (La) amusante. Expériences à la portée de tous. Paris, 1898. 8vo. Ill.

FAIRIE, JAMES.

Notes on Lead Ores. London, 1902.

Notes on Pottery Clays; the distribution, properties, uses, and analyses of ball clays, China clays, and China stone. London, 1901. 12mo.

FARADAY, HITTORF, and KOHLRAUSCH.
The Fundamental Laws of Electrolytic Conduction. New York, 1899. 8vo.
Harper's Scientific Memoirs.

FARNSTEINER, K., P. BUTTENBERG, und O. KORN.
Leitfaden für die chemische Untersuchung der Abwässer. München, 1902. 8vo. Ill.

FARRINGTON, F. H., and F. W. WOLL.
Testing Milk and its Products. A manual for dairy students, creamery and cheese factory operators and dairy farmers. Third edition. Madison, Wisconsin, 1898. 12mo. Ill.
Tenth revised and enlarged edition. Madison, 1901. 12mo. Ill.

FATIGATI, E. S.
Elementos de química. Química inorganica. Sexta edicion. Madrid, 1900.

FAVREL, G.
Contribution à l'étude de quelques hydrazones. Nancy, 1902. 8vo.

FAYMONVILLE, A.
Die Purpurfärberei der verschiedenen Kulturvölker des klassischen Alterthums und der frühchristlichen Zeit. Heidelberg, 1900.

FELS, G.
Ueber die Frage der isomorphen Vertretung von Halogen und Hydroxyl. München, 1900.

FENDERL, E.
Hauptmomente der Acetylen- und Carbid-Industrie. Wien, 1900.

FIERZ, E.
Les recettes du distillateur. Paris, 1899.

FILETI, M.
Tavole di analisi chimica qualitativa. Settima edizione. Torino, 1900. 12mo.
Ottava edizione. Torino, 1902. 12mo.

FILLOL, O. DE.
Histoire du bon vin. Paris, 1898. 8vo.

FISCHER, B.
Lehrbuch der Chemie für Pharmaceuten. Vierte vermehrte Auflage. Stuttgart, 1899. 8vo. Ill.

FISCHER, E.
Anleitung zur Darstellung organischer Präparate. Sechste Auflage. Würzburg, 1901. 12mo. Ill.

FISCHER, EMIL, und MAX GUTH.
Der Neubau des ersten chemischen Instituts der Universität Berlin. Berlin, 1901. Fol. 28 photographs and 12 plates.

FISCHER, FERDINAND.
Die Brennstoffe Deutschlands und der übrigen Länder der Erde, und die Kohlennoth. Braunschweig, 1901.

Die chemische Technologie der Brennstoffe. Berlin, 1897–1901. 2 parts. 8vo. Ill.

Handbücher der chemischen Technologie. Vierte Auflage. (Fünfzehnte umgearbeitete Auflage von R. von Wagner's Handbuch der chemischen Technologie.) Leipzig, 1900–1902. 2 vols., 8vo. Ill.

Taschenbuch für Feuerungstechniker. Anleitung zur Untersuchung und Berurtheilung von Brennstoffen und Feuerungsanlagen. Vierte umgearbeitete Auflage. Stuttgart, 1901. 8vo. Ill.

Manuel pour l'essai des combustibles et le contrôle des appareils de chauffage. Traduit d'après la quatrième édition allemande par L. Gautier. Paris, 1902. 12mo. Ill.

Das Wasser, seine Verwendung, Reinigung und Beurtheilung, mit Berücksichtigung der gewerblichen Abwässer und der Flussverunreinigung. Dritte umgearbeitete Auflage. Berlin, 1902. 8vo.

FISCHER, FERDINAND (et R. WAGNER).
Traité de chimie industrielle à l'usage des chimistes, des ingénieurs, des métallurgistes, des industriels, des fabricants de produits chimiques, des agriculteurs, des écoles d'arts et manufactures, d'arts et métiers, etc. Quatrième édition française entièrement refondue, publiée d'après la cinquième édition allemande par L. Gautier. Paris, 1901. 2 vols., 8vo. Ill.

FISCHER, K. T.
Der naturwissenschaftliche Unterricht in England, insbesondere in Physik und Chemie. Mit einer Uebersicht der Englischen Unterrichtslitteratur zur Physik u. Chemie. Leipzig, 1901. 8vo.

FISCHER, O.

Chemische Studien über die Alkaloide der Steppenraute (Peganum harmala). Pr. Luitp. Festschrift. Erlangen, 1901. 4to.

FISK, H. J.

Assayers' and Miners' Textbook. Adapted to the laboratory and school. Practical instructions to assayers; miners and prospectors; tests and assays of all the principal metal-bearing rocks, including gold and silver bullion. Portland, Oregon, 1898. 8vo. Ill.

FITZGERALD, H. P.

Analysis of a Single Salt and of Simple Mixtures. Second edition, enlarged. London, 1901. 8vo.

FLEISCHMANN, WILHELM.

Lehrbuch der Milchwirthschaft. Dritte neu bearbeitete Auflage. Leipzig, 1901. 8vo. Ill.

The Book of the Dairy. Translated by C. M. Aikman and R. P. Wright. New York, 1897. 8vo. Ill.

FLETCHER, E. L.

Instructions pratiques concernant la conduite des essais qualitatifs et quantitatifs au chalumeau. Traduites et interprétées par E. Morineau. Paris, 1899. 8vo.

FLETCHER, T.

The Commercial Uses of Coal-gas. London, 1897. 8vo.

FLEURENT, ÉMILE.

Manuel d'analyse chimique. Paris, 1898.

FLORET, C.

Procédés modernes de vinification. Deuxième édition. Montpellier, 1899. 8vo. Ill.

FORMANEK, J.

Die qualitative Spectralanalyse anorganischer Körper. Berlin, 1901. 8vo. Ill.

Spectralanalytischer Nachweis künstlicher organischer Farbstoffe zum Gebrauche bei wissenschaftlichen und gewerblichen Untersuchungen. Berlin, 1900. 8vo. Ill.

FORMENTI, C.
L'alluminio.. Milano, 1898. 16mo. Ill.

FORMULARIO di chimica generale inorganica ed organica, pubblicato per cura della libreria universitaria Castellotti e Scrivano di Torino. Seconda edizione. Colle più recenti modificazioni e coll'aggiunta d'un indice dei principali composti colla rispettiva formola. Torino, 1902. 8vo.

FOSTER, JAMES.
Treatise on the Evaporation of Saccharine, Chemical, and other Liquids, by the Multiple System, in Vacuum and Open Air. Second edition. Compiled by James Foster. Sunderland (England), 1895. 8vo.

FOWLER, GILBERT J.
Sewage Works Analyses. London and New York, 1902.

FRÄNKEL, C., und KLOSTERMANN.
Bericht über die Untersuchung von Nahrungsmitteln, etc., im Hygienischen Institut zu Halle a. S. für die Zeit vom 1. April, 1898 bis 30. März, 1900. Leipzig, 1902. 8vo.

FRANCHE, CH.
Manuel pratique du fabricant de vinaigre. Avec une préface de A. Trillat. Paris, 1901.

FRANCHIMONT, A. P. N.
Toespraak gehouden bij het openlijk in gebruik nemen van het Laboratorium voor organische Chemie op 31. October 1901. Leiden, 1901. 8vo.

FRANÇOIS, M.
Contribution à l'étude des iodures de mercure et de leurs dérivés ammoniés. Paris, 1901. 8vo.

FRAPS, GEORGE S.
Principles of Dyeing. New York, 1902. 8vo. Ill.

FRAUNHOFER, J. VON.
Prismatic and Diffraction Spectra. Edited by J. S. Ames. New York, 1899. 8vo.
Harper's Scientific Memoirs.

FRÉBAULT, A.
La théorie des valences fractionnés; ses applications à l'atomicité absolue des éléments, à la constitution chimique des corps et à la cohésion. Tours, 1900. 8vo. Ill.

FRÉCAULT, J.
Analyse chimique des sels dissous, à l'usage des écoles. Paris, 1899. 12mo.

FREIRE, D. J.
Liçôes elementares de chimica organica con applicaçâo a medicina e a pharmacia. Rio de Janeiro, 1882.

FRENCH, W.
Practical Chemistry. Part 1. London, 1900. 8vo.

FRENZEL, P.
Das Gas und seine moderne Anwendung. Wien, 1902. 8vo. Ill.

FRESENIUS, C.
Entstehung, Gewinnung, Reinigung und Verwerthung des Erdwachses mit kritischer Beleuchtung der bekanntesten Naphta-Hypothesen. Brüssel, 1902. 8vo.

FRESENIUS, C. REMIGIUS.
Anleitung zur quantitativen und chemischen Analyse. Sechste vermehrte und verbesserte Auflage. Dritter Abdruck. Braunschweig, 1898. 2 vols., 8vo. Ill.

Vierter unveränderter Abdruck. Vol. 1. Braunschweig, 1900. 8vo. Ill.

Quantitative Chemical Analysis. Seventh edition, translated from the revised sixth edition by Charles E. Groves. London, 1900. 2 vols., 8vo. Ill.

Traité d'analyse chimique qualitative. Deuxième édition française traduite sur la seixième édition allemande et revue par L. Gautier. Paris, 1902. 8vo. Ill.

FRESENIUS, H.
Chemische Untersuchung der neuen Selterser Mineralquelle zu Selters bei Weilburg a. d. Lahn. Wiesbaden, 1898. 8vo.

Chemische Untersuchung der Soolquelle in Kreuzkamp bei Lippstadt. Wiesbaden, 1902. 8vo.

Fresenius, H. [Cont'd.]

Chemische Untersuchung des Kiedricher Sprudels im Kiedrichthale bei Eltville am Rhein. Wiesbaden, 1900. 8vo.

Chemische Untersuchung des Lamscheider Stahlbrunnens Emma-Heilquelle. Wiesbaden, 1899. 8vo.

Freundler, P.

La stèréochimie. Paris, 1899. 12mo. Ill.

Freysoldt, O.

Die dissiparische Arbeitsmethode zur Behandlung flüssiger und gasförmiger Massen im Grossbetriebe, besonders der Abwässer aus Städten, Bergwerken, Fabriken, etc. Berlin, 1901. 8vo.

Friedberg, W.

Die Verwerthung der Knochen auf chemischen Wege. Zweite vermehrte und verbesserte Auflage. Wien, 1901. 8vo. Ill.

Friedländer, S.

Einleitung in die Photochemie. Eine Einführung in das Studium der Chemie und Photochemie. Weimar, 1898. 8vo. Ill.

Frigerio, M.

Il latte. Milano, 1899. 12mo.

Frisskll, H. B., and Isabel Bevier.

Dietary Studies of Negroes in Eastern Virginia in 1897 and 1898. Bulletin No. 71. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1899.

Fröhner, E.

Lehrbuch der Toxikologie für Thierärzte. Zweite Auflage. Stuttgart, 1900. 8vo.

Frölich, O.

Tabelle zur Bestimmung der Gasausbeute aus Calciumcarbid. Halle, 1901. 4to.

Frölich, O., und H. Herzfeld.

Stand und Zukunft der Acetylenbeleuchtung. Berlin, 1898. 8vo.

Frölich, P.

Table servant au calcul de la quantité du gaz développé par du carbure de calcium. Halle, 1901. Fol.

FUENCARRAL, J. G. DE.
Manual prático de perfumeria. Barcelona, 1899. 4to.

FUERTES, J. H.
Water and Public Health. New York, 1898. 8vo.

FUNK, V.
Arbeiten im chemischen Laboratorium landwirthschaftlicher Schulen. Leipzig, 1899. 8vo.

GABBA, LUIGI.
Manuale del chimico e dell' industriale. Terza edizione arricchita delle tavole analitiche di H. Will. Milano, 1902. 16mo.

GABER, A.
Die Fabrikation von Rum, Arrak, Cognak und allen Arten von Obst- und Früchtenbranntweinen. Zweite verbesserte und vermehrte Auflage. Wien, 1898. 8vo. Ill.

Die Liqueurfabrikation. Siebente verbesserte und sehr vermehrte Auflage. Wien, 1898. 8vo. Ill.

GADOLA, A.
Guida per le ricerche chimiche sulle sostanze alimentari. Caserta, 1899. 16mo.

Metodo pratico per l'analisi chimica qualitativa. Caserta, 1899. 12mo.

GANSWINDT, A.
Einführung in die moderne Färberei, enthaltend die Spinnfasern, die Chemikalien, die gesammten Farbstoffe, sowie die dem eigentlichen Färben vorausgehenden Arbeiten. Leipzig, 1902. 8vo.

GARBARINI, G.
Lezioni di chimica analitica, dettate nella R. Università di Parma nell' anno 1899–1900. Parma, 1900. 8vo.

GARÇON, JULES.
Répertoire générale ou dictionnaire méthodique de bibliographie des industries tinctoriales et des industries annexes depuis les origines jusqu'à la fin de 1896. Technologie et chimie. Paris, 1900–1901. 3 vols., roy. 8vo.

Traité général des applications de la chimie. Vol. I. Métalloides et composés métalliques. Paris, 1901. roy. 8vo.

GARRAUD, P. T.
Coefficient de partage des acides gras monobasiques de la série $C_nH_{2n}O_2$ depuis la condensation C_1 jusqu'à la condensation C_5 inclusivement. Bordeaux, 1897. 8vo.

GARRETT, F. C., and ARTHUR HARDEN.
An Elementary Course in Practical Organic Chemistry. London and New York, 1897. 12mo.

GASPARIS, A. DE.
Il sale e le saline (processi industriali, usi del sale, prodotti chimici, industria manifatturiera, industria agraria, il sale nell'economia pubblica e nella legislazione). Milano, 1900. 16mo.

GASTU, J.
Les phosphates de chaux d'Algérie. Paris, 1901.

GATTERMANN, LUDWIG.
Die Praxis des organischen Chemikers. Dritte verbesserte und vermehrte Auflage. Leipzig, 1898. 8vo. Ill.
Vierte Auflage. Leipzig, 1900. 8vo. Ill.
Fünfte Auflage. Leipzig, 1902. 8vo. Ill.
The Practical Methods of Organic Chemistry. Translated by William B. Schober. Second American from the fourth German edition. New York, 1901.

GAUTHIER, V.
Manuale di tossicologia ad uso dei medici, farmacisti e student Milano, 1898. 8vo. Ill.

GAUTIER, ARMAND, et J. ALBAHARY.
Cent vingt exercises de chimie pratique décrits d'après les text originaux et les notes de laboratoire et choisis pour former l chimistes. Paris, 1899. 16mo. Ill.

GAUTIER, HENRI, et GEORGES CHARPY.
Leçons de chimie, à l'usage des élèves de mathématiques spéciale Troisième édition entièrement refondue. Paris, 1899. 8v Ill.

GAY LUSSAC, JOULE, and JOULE and THOMSON.
The Free Expansion of Gases. Edited by J. S. Ames. New York 1899.
Harper's Scientific Memoirs.

GAZE, WM. H.

A Handbook of Practical Cyanide Operations. Sydney, N. S. W., 1898. 8vo.

GEERLIGS, H. C. PRINSEN.

See Prinsen Geerligs, H. C.

GEIGER, G.

Galvanisation et galvanoplastie. (Cuivrage, dorure, argenture, nickelage, platinage, aciérage, etc.) Paris, 1900.

GEISSLER, K.

Der erste Chemie-Unterricht. Ein methodisches Schulbuch mit geordneten Denkübungen. Leipzig, 1898. 8vo.

GEITEL, M.

Das Wassergas und seine Verwendung in der Technik. Zweite Auflage. Berlin, 1899. 8vo. Ill.

GEORGE, GEORGE.

Practical Organic Chemistry for the Elementary and Advanced Examinations of the Science and Art Department. London, 1899.

GEORGIEVICS, G. VON.

Lehrbuch der chemischen Technologie der Gespinnstfasern. Theil II. Gespinnstfasern, Wäscherei, Bleicherei, Färberei, Druckerei, Appretur. Wien, 1898. 2 vols., 8vo. Ill.

Zweite Auflage. Wien, 1902.

Chemical Technology of Textile Fabrics, their origin, structure, preparation, washing, bleaching, dyeing, printing and dressing. Translated from the German by Chas. Salter. London, 1902. Roy. 8vo. Ill.

Lehrbuch der Farbenchemie. Zweite Auflage. Wien, 1901.

GÉRARD.

Précis de manipulations pharmaceutiques. Paris, 1902. 18mo.

GERDES, PETER.

Einführung in die Elektrochemie. Halle-a-S., 1902.

Einleitung in die Elektrochemie nach der elektrolytischen Dissociationstheorie bearbeitet. Halle, 1902. 8vo. Ill.

Gerlach, H.
Grundlehren der Chemie. Zum Gebrauch beim Unterricht in den oberen Gymnasialklassen. Leipzig, 1900. 8vo.

Geschwind, Lucien.
Industries du sulfate, d'aluminium, des aluns et des sulfates de fer. Paris, 1899. 8vo. Ill.

Manufacture of Alum and Sulphates and other salts of alumina and iron, their uses and applications as mordants in dyeing and calico-printing. Translated from the French by Charles Salter. London, 1901. 8vo. Ill.

Getman, Frederick H.
The Elements of Blowpipe Analysis. New York, 1899. 16mo.

Ghersi, I.
Galvanostegia, nichelatura, argentatura, doratura, ramatura, metallizzazione. Milano, 1898. 12mo. Ill.

Metallocromia, colorazione e decolorazione dei metalli per via chimica ed elettrica. Milano, 1898. 12mo.

Gibbs, J. Willard.
Equilibre des systèmes chimiques. Traduit par H. Le Chatelier. Paris, 1899. 8vo.

Gibbs, William E.
Acetylene Gas, its production and use. Practical handbook treating of generators, burners, and electric furnaces. London, 1898. 8vo. Ill.

Lighting by Acetylene: generators, burners, and electric furnaces. Second edition revised and enlarged. New York, 1898. 12mo. Ill.

Gibson, H. B., S. Calvert and D. W. May.
Dietary Studies at the University of Missouri in 1895, and data relating to bread and meat consumption in Missouri. With comments by W. O. Atwater and Charles D. Woods. Bulletin No. 31. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1896.

Giesel, F.
Ueber radioactive Substanzen und deren Strahlen. Stuttgart, 1902.

GIGLIOLI, J.

Brevi notizie sull' attività del Laboratorio di chimica agraria presso la R. Scuola superiore di agricoltura in Portici dal 1877 al 1901. Portici, 1901.

Chimica agraria campestre e silvana. Napoli, 1902. 8vo. Ill.

GILDEMEISTER, E., und FREDERICK HOFFMANN.

Die aetherischen Oele. Bearbeitet im Auftrage der Firma Schimmel und Co. in Leipzig. Berlin, 1899. roy. 8vo. Ill.

Les huiles essentielles. Histoire, production, propriétés, composition, préparation, essais, commerce. Traduit de l'allemand par A. Gault, avec préface de A. Haller. Paris, 1900. 8vo.

The Volatile Oils. Authorized translation by Edward Kremers. Milwaukee, 1900. 8vo. Ill.

GILKINET, H.

Traité de chimie pharmaceutique. Deuxième édition. Paris, 1901. 8vo. Ill,

GILL, AUGUSTUS H.

Gas and Fuel Analysis for Engineers. A compend for those interested in the economical application of fuel. Prepared especially for the students at the Massachusetts Institute of Technology. Second edition, revised. New York and London, 1900.

Third edition. New York and London, 1902.

A Short Handbook of Oil Analysis. Philadelphia, 1898. 8vo.

GILL, C. HAUGHTON.

An introduction to the Practical Study of Chemistry. Tenth edition, revised and enlarged by D. Hamilton Jackson. London, 1898.

GIONGO, C.

Note di analisi chimica qualitativa minerale. Milano, 1897. 8vo.

GIORGI, N.

L'alcool denaturato nei suoi rapporti con l'industria. Roma, 1900. 8vo.

GIRALT, E.

Aperçu pratique de l'alcoolométrie des spiritueux de consommation. Paris, 1898. 8vo. Ill.

GIRAN, H.

Traité élémentaire de travaux pratiques de chimie. Préparations et analyses. Paris, 1899. 18mo.

GIRARD, CHARLES et LUCIEN CUNIASSE.

Manuel pratique de l'analyse des alcools et des spiritueux. Paris, 1899.

Contains a bibliography of the subject.

GIRARD, J.

L'analyse des mélanges salins à l'état pulvérulent. Paris, 1900. 18mo.

GIRARDVILLE, P.

L'acétylène et ses applications. Paris, 1900. 8vo.

GLAHN, C. J.

Chemisch-technische Fabrikations-Verfahren aus der Praxis. Berlin, 1899.

Die Fabrikation lohnender chemisch-technischer Consum- Artikel. Leipzig, 1898. 8vo.

GLASER, F.

Indicatoren der Acidimetrie und Alcalimetrie. Wiesbaden, 1900. 8vo.

Repetitorium der Pharmacologie (Arzneiverordnungslehre, Arzneimittellehre und Toxikologie) nach Prüfungsfragen bearbeitet. Würzburg, 1899. 8vo.

GLIMM, E.

Ueber die Constitution formaldehydeschwefligersaurer Salze. Ueber die Affinitätsgrosse aromatischer Oxaldehyde. Freiburg, 1902.

GLINZER, E.

Kurzgefasstes Lehrbuch der Baustoffkunde, nebst einem Abriss der Chemie. Zweite Auflage. Dresden, 1899.

GNEHM, R.

Taschenbuch für die Färberei und Farbenfabrikation. Unter Mitwirkung von H. Surbeck. Berlin, 1902. 8vo. Ill

GOLDBERG, A.

Zur Kenntniss des Schwefelcyans des sogenannten Pseudoschwefelcyans und des aus Rhodansalzen erhaltenen gelben Farbstoffes. Chemnitz, 1901. 8vo. Ill.

GOLDSCHMIDT, F.

Der Wein von der Rebe bis zum Consum, nebst einer Beschreibung der Weine aller Länder. Zweite Auflage. Mainz, 1901. 8vo. Ill.

GOOCH, FRANK AUSTIN, Editor.

Research Papers from the Kent Chemical Laboratory of Yale University. Vols. I and II. New York, 1901. 2 vols. 8vo.

GOOSE, FRIEDRICH.

Die Beziehungen der Benzolderivate zu den Verbindungen der Fettreihe. Stuttgart, 1898. 8vo.

Sammlung chemischer und chemisch-technischer Vorträge.

GORET, M.

Étude chimique et physiologique de quelques albumens cornés de graines légumineuses. Paris, 1901. 8vo.

GOSS, ARTHUR.

Dietary studies in New Mexico in 1895. Bulletin No. 40. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1897.

Nutrition Investigations in New Mexico in 1897. Bulletin No. 54, U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1898.

GOUPIL, P.

Tableaux synoptiques pour l'analyse chimique de l'eau et l'examen microscopique. Paris, 1900. 16mo. Ill.

Tableaux synoptiques pour l'analyse des engrais. Paris, 1900. 16mo.

Tableaux synoptiques pour l'analyse du lait, du beurre, et du fromage. Paris, 1900. 16mo. Ill.

Tableaux synoptiques pour l'analyse des vins, de la bière, du cidre et du vinaigre. Paris, 1900. 16mo. Ill.

GRAEBE, C.

Guide pratique pour l'analyse quantitative. Deuxième édition revue et augmentée. Genève, 1900. 8vo. Ill.

GRANDEAU, L.

Le sucre et l'alimentation de l'homme et des animaux. Paris, 1899. 8vo.

GRANGER, A.

Contribution à l'étude des phosphures métalliques. Paris, 1898.

Etude de quelques laboratoires industriels et des ecoles techniques supérieures en Allemagne. Rapport présenté au ministre du commerce. Paris, 1901. 8vo.

GRASSINI, R.

Appunti di chimica teorica. Firenze, 1901. 8vo. Ill.

GRAUER, K.

Die Preisbewegung von Chemikalien seit dem Jahre 1861. Stuttgart, 1902. 8vo.

GREBE, C.

Allgemeine Photochemie. Mailand, 1898. 8vo.

GREEN, J. R.

The soluble ferments and fermentation. Cambridge, 1899. 8vo.

Die Enzyme. Ins Deutsche übertragen von W. Windisch. Berlin, 1901. 8vo.

GREGORY, R. A., and SIMMONS, A. T.

Experimental Science. Section I. Elementary Course of Physics and Chemistry. London, 1899. 8vo. Ill.

GRIGNARD, V.

Sur les combinaisons organo-magnésiennes mixtes et leur application à des systèmes d'acides, d'alcools et d'hydrocarbures. Paris, 1901.

GRIMAUX, E.

Chimie inorganique élémentaire. Huitième édition, revue. Paris, 1901.

Chimie organique élémentaire. Huitième édition, revue. Paris, 1901.

GRIVEAU, M.

Les feux et les eaux. Paris, 1899. 12mo. Ill.

GRÖGER, A.

Chemisch-technisches Vademecum für Zuckerfabriken 1851-1900. Leipzig, 1902. 8vo.

GRÖNDAL, BENEDICT.
Efnafraethi. Reykjavik 1886. 8vo. 78–[2] pp.

Mr. Gröndal has also published Roscoe's Chemistry [the primer] in Icelandic.

GROS-RENAUD, CH.
Les mordants en teinture et en impression. Paris, 1898. 8vo.

GROTOWSKY, H.
Ueber das Phenylacetylacetophenon und Abkömmlinge des 1.4 Benzopyronols. Tübingen, 1902.

GROVES, C. E., and W. THORP.
Chemical Technology, or Chemistry in its applications to arts and manufactures. With which is incorporated Richardson and Watts' "Chemical Technology." Vol. III. Gas Lighting, by Charles Hunt. London, 1901.

GRÜNHUT, M.
Vocabolarietto tecnico per l'interpretazione di libri tedeschi di chimica. Livorno, 1900. 12mo.

GUARESCHI, ICILIO.
Nozioni di analisi chimica e cenni sull' analisi delle acque. Torino, 1898. 4to. Ill.

GUICHARD, P.
Analyse chimique et purification des eaux potables. Paris, 1901. 8vo. Ill.

La question de l'eau potable devant les municipalités. Paris, 1902. 8vo. Ill.

GUILLAUME, ED.
Recherches sur le nickel et ses alliages. Paris, 1898. 8vo.

GUILLET, LÉON.
L'industrie des acides minéraux. Paris, 189–. 8vo. Ill.

GULDBERG, C. M., und P. WAAGE.
Untersuchungen über die chemischen Affinitäten. Abhandlungen aus den Jahren 1864, 1867, 1879. Übersetzt und herausgegeben von R. Abegg. Leipzig, 1899. 8vo. Ill.

GUTBIER, A.
Studien über das Tellur. Leipzig, 1901.

GUTTMANN, OSCAR.
Schiess- und Sprengmittel. Braunschweig, 1900. 8vo.

HABER, F.
Grundriss der technischen Elektrochemie auf theoretischer Grundlage. München, 1898. 8vo. Ill.

HAEFCKE, H.
Städtische Fabrikabwässer. Ihre Natur, Schädlichkeit und Reinigung. Wien, 1901. 8vo. Ill.
Die technische Verwerthung von thierischen Abfällen. Wien, 1899. 8vo. Ill.

HAENLEIN, F. H.
Die Deutschen Reichspatente der Klasse 28 (Gerberei). Alphabetisch und sachlich zusammengestellt und mit Anmerkungen versehen. Freiburg, 1901. 8vo.

HALL, VERNON J.
Chemistry and Metallurgy applied to Dentistry. Evanston, Ill., 1898.

HALLERBACH, W.
Formeln, Moleculargewicht und procentische Zusammensetzung kemischer Körper. Bonn, 1902.

HALLIBURTON, U. D.
The Essentials of Chemical Physiology. London, 1899.

HALLOPEAU, L. A.
Sur quelques propriétés des paratungstates. Paris, 1899.

HALPHEN, G.
Analyses des matières grasses. Paris, 1901. 8vo.

HAMMARSTEN, OLOF.
Lehrbuch der physiologischen Chemie. Vierte völlig umgearbeitete Auflage. Wiesbaden, 1899. 8vo. Ill.
A Text-book of Physiological Chemistry. Authorized translation from the author's enlarged and revised third German edition by John A. Mandel. Second edition. New York and London, 1898. 8vo. Plate.
Third edition. New York and London, 1899. 8vo. Plate.

HANAUSCK, T. F.
Lehrbuch der Materialienkunde auf naturgeschichtlicher Grundlage. Wien, 1898–'99. 3 vols., 8vo. Ill.

HAND, E. N.
The Atom and Mechanical Chemistry. Spokane, Wash., 1802 [*sic*] (for 1902).

HANDBUCH DER ELEKTROCHEMIE. Bearbeitet von W. Borchers, E. Bose, H. Danneel [and others]. Halle, 1902. 8vo. Ill.

HANKO, W. VON.
Die Bäder und Mineralwässer der Erdelyer Landestheile Ungarns. Wien, 1900. 8vo. Ill.

HANTKE, E.
Handbuch für den Amerikanischen Brauer und Mälzer. Leipzig, 1899. 2 vols. 8vo. Ill.

HANTZSCH, A.
The Elements of Stereochemistry. Translated from the last French edition of Guye and Gautier by Charles G. L. Wolf. Easton, Pa., 1900.

HARDIN, WILLETT L.
The Rise and Development of the Liquefaction of Gases. New York and London, 1899. 12mo. Ill.

Die Verflüssigung der Gase. Geschichtlich entwickelt. Uebersetzt von J. Traube. Stuttgart, 1900. 8vo. Ill.

HARLAY, V. A.
De l'application de la tyrosinase, ferment oxydant du Russula delica, à l'étude des ferments protéolytiques. Paris, 1900. 8vo.

HARPER'S SCIENTIFIC MEMOIRS. Edited by J. S. Ames. I–VII. New York, 1899. 8vo. With illustrations.

I. Gay-Lussac, Joule, and Joule and Thomson, The free Expansion of Gases. Edited by J. S. Ames.

II. J. v. Fraunhofer, Prismatic and Diffraction Spectra. Edited by J. S. Ames.

III. Röntgen, Stokes and J. J. Thomson, Röntgen Rays. Edited by G. F. Barker.

HARPER'S SCIENTIFIC MEMOIRS. [Cont'd.]

IV. Pfeffer, Van't Hoff, Arrhenius and Raoult, The modern Theory of Solution. Edited by H. C. Jones. 13 and 134 pp., with illustrations.

V. R. Boyle and E. H. Amagat, The Laws of Gases. Edited by C. Barus. 110 pp., with 10 illustrations.

VI. Carnot, Clausius and Thomson, The second Law of Thermodynamics. Edited by W. F. Magie. 5 and 151 pp., with 9 illustrations.

VII. Faraday, Hittorf and Kohlrausch, The fundamental Laws of electrolytic Conduction. 6 and 98 pp., with 18 illustrations.

HARPF, A.

Flüssiges Schwefeldioxyd. Darstellung, Eigenschaften und Verwendung desselben; Anwendung des flüssigen und gasförmigen Schwefeldioxydes in Gewerbe und Industrie. Stuttgart, 1900. 8vo. Ill.

HARTMANN, E.

Chemie für das Tentamen physicum. Sechste Auflage. Leipzig, 1900.

HARZ, K. E.

Lehrbuch der anorganischen Chemie und Mineralogie. Erlangen, 1899. 8vo. Ill.

Lehrbuch der organischen Chemie. Erlangen, 1899. 8vo. Ill.

HASELBACH, H.

Leitfaden für die analytisch-chemischen Uebungen an Realschulen. Wien, 1899. 8vo. Ill.

HÄUSSERMANN, J.

Ueber die Produkte der Chlorwasserstoffentziehung aus Säurechloriden, unter besonderer Berücksichtigung der Einwirkung tertiärer Basen. Tübingen, 1902.

HAUSBRAND, E.

Das Trocknen mit Luft und Dampf. Erklärungen, Formeln und Tabellen für den praktischen Gebrauch. Zweite Auflage. Berlin, 1902. 8vo. Ill.

SBRAND, E. [Cont'd.]

erdampfen, Condensiren und Kühlen. Erklärungen, Formeln und Tabellen für den praktischen Gebrauch. Berlin, 1899. 8vo. Ill.

SNER, A.

anufacture of Preserved Foods and Sweetmeats. A Handbook of all the Processes for the Preservation of Flesh, Fruit and Vegetables, and for the Preparation of Dried Fruit, Dried Vegetables, Marmalades, Fruit-Syrups and Fermented Beverages and of all kinds of Candies, Candied Fruit, Sweetmeats, Rocks, Drops, Dragees, Pralines, etc. Translated from the third enlarged German edition by Arthur Morris and Herbert Robson. London, 1902. 8vo.

WOOD, J. K.

he Chemical Composition of Insecticides and Fungicides. With an account of the methods of analysis employed. Washington, 1902.

See in Section VII, Bulletins of the Division of Chemistry.

ERT, A.

xamen sommaire des boissons falsifiées. Paris, 18—. 8vo. Ill.

DERWICK, T. C. H.

he Sale of Food and Drugs. The Acts of 1875, 1879, and 1899, with notes on the reported cases. Second edition. London, 1901. 8vo.

ERMANN, P.

ärberei-chemische Untersuchungen. Anleitung zur Untersuchung, Bewerthung und Anwendung der wichtigsten Färberei-, Druckerei-, Bleicherei- und Appretur-Artikel. Berlin, 1898. 8vo. Ill.

Dyers' Materials. Introduction to examination, evaluation, application of the most important substances used in dyeing, bleaching, and finishing. Translated by A. C. Wright. London, 1901.

ERWAGEN, A.

eitfaden der Chemie und Nahrungsmittellehre. Bamberg, 1900. 8vo. Ill.

HEGEL, S.
Die Chromgerbung. Unter besonderer Berücksichtigung der in- und ausländischen Patentlitteratur. Berlin, 1898. 8vo.

HEHL, R. R.
Flüssige Luft. Kurze Beschreibung der Herstellung der flüssigen Luft, unter Hinweisung auf die Fortschritte der letzten Jahre. Halle, 1901.

HEHN, V.
Das Salz. Eine kulturhistorische Studie. Zweite Auflage, herausgegeben von O. Schrader. Berlin, 1900.

HELLOT, M.
Art of Dyeing Wool, Silk, and Cotton. Translated from the French. London, 1901.

HELOT, J.
Le sucre de betterave en France de 1800 à 1900. Cambrai, 1900. 8vo. Ill.

HEMMELMAYR, F. VON.
Lehrbuch der anorganischen Chemie. Leipzig, 1899. 8vo. Ill.

Lehrbuch der organischen Chemie. Leipzig, 1898. 8vo. Ill.

HEMMELMAYR, F. VON, und K. BRUNNER.
Lehrbuch der Chemie und Mineralogie. Leipzig, 1900. 8vo. Ill

HEMPEL, WALTHER.
Gasanalytische Methoden. Dritte Auflage. Braunschweig, 1900. 8vo. Ill.

Methods of Gas Analysis. Translated from the third German edition and considerably enlarged by L. M. Dennis. New York and London, 1902. 8vo.

HENDERSON, G. G.
The Risks attending the Use of Mineral Oil and of Acetylene. London, 1899. 8vo.

HENDERSON, G. G., and M. A. PARKER.
An Introduction to Analytical Chemistry. London, Glasgow, and Dublin, 1899.

An Introduction to Analytical Chemistry. London, 1900.

HENNINGER, K. A.

Chemisch-analytisches Praktikum behufs Einführung in die qualitative Analyse. Braunschweig, 1902. 8vo.

Chemisches Practicum behufs Einführung in die qualitative Analyse. Charlottenburg, 1900. 8vo.

HENRIET, H.

Les gaz de l'atmosphère. Paris, 18—. 8vo. Ill.

HENRIVAUX, J.

Le verre et le cristal. Nouvelle édition, revue et considérablement augmentée. Paris, 1897. 8vo. Ill. With an atlas of 32 plates.

HENSEL, J.

Brod aus Steinen durch mineralogische Düngung der Felder. Zugleich eine kurzgefasste Chemie für Laien, Landwirthe und Chemiker. Leipzig, 1898. 8vo.

HERBET, F.

Manuel de la culture pratique et commerciale du caoutchouc. Paris, 1899. 18mo. Ill.

HERDING, J. F., und O. HAHN.

Elemente der Experimentalchemie. Geordnet nach den Grundsätzen von R. Arendt. Hamburg, 1898. 8vo.

HERM, W.

Repetitorium der Chemie für Techniker. Kurzgefasstes Lehrbuch enthaltend eine Einleitung in die Chemie und eine Abhandlung der wichtigsten Elemente und ihrer Verbindungen, unter besonderer Berüksichtigung der technish angewandten Körper, ihrer Eigenschaften und Darstellungsmethoden. Braunschweig, 1900. 8vo. Ill.

HERZ, W.

Kurze Anleiting zum chemischen Practicum für Mediciner. Breslau, 1899. 8vo,

Ueber die Molekulargrösse der Körper im festen und flüssigen Aggregatzustande. Stuttgart, 1899. 8vo.

Sammlung chemischer und technisch-chemischer Vorträge.

Ueber die wichtigsten Beziehungen zwischen der chemischen Zusammensetzung von Verbindungen und ihren physikalischen Verhalten. Stuttgart, 1898. 8vo.

Sammlung chemischer . . . Vorträge.

HERZBERG, W.
Papierprüfung. Anleitung zur Untersuchung von Papier. Zweite vollständig neubearbeitete Auflage. Berlin, 1902.

HERZFELD, H., BEER und MATZDORFF.
Repetitorium der Chemie, Physik, Pharmakognosie und Botanik. Für Apotheker, Mediciner, Chemiker, u. s. w. Berlin, 1900.

HERZFELD, J.
Das Fäben und Bleichen von Baumwolle, Wolle, Seide, Jute, Leinen, etc., in unversponnen Zustande als Garn und Stückwaare. Zweite gänzlich neu bearbeitete Auflage von F. Schneider. Berlin, 1900–01. 8vo. 3 parts.
Part I. Die Bleichmittel, Beizen und Farbstoffe. Eigenschaften, Prüfung und praktische Anwendung.

HERZFELD, J., und O. KORN.
Chemie der seltenen Erden. Berlin, 1901.

HESS, O.
Das Formaldehyde als Desinfectionsmittel. Zweite verbesserte Auflage. Marburg, 1901. 8vo.

HEUMANN, K.
Die Anilinfarben und ihre Fabrikation. Zweiter Theil nach des Verfassers Tode fortgesetzt und herausgegeben von P. Friedlaender. Braunschweig, 1898. 8vo.
Theil III. Die Azofarbstoffe und die speciellen, zu ihrer Darstellung dienenden aromatischen Basen. Braunschweig, 1900. 8vo.
Part I was published in 1888.

HEUSLER, F.
The Chemistry of the Terpenes. Authorized translation by Francis J. Pond. Carefully revised, enlarged, and corrected. London and Philadelphia, 1902. 8vo.

HEWITT, J. D.
Organic Chemical Manipulation. London, 1899. 8vo. Ill

HIGHTON, H. P.
Introduction to Practical Quantitative Analysis. London, 1898. 8vo.

HILL, A.

Ueber die quantitative Bestimmung des Zinks in seinen Erzen durch Titrermethode und Elektrolyse. Zürich, 1897. 8vo.

HILL, A. W.

Course of Experimental Chemistry (elementary). London, 1899. 8vo.

HILL, HENRY W.

Chemistry for Examinations. London, 1900.

HILLEBRAND, W. F.

Some Principles and Methods of Rock Analysis. Bulletin of the United States Geological Survey, No. 176. Washington, 1900. 8vo.

HILLYER, H. W.

Laboratory Manual. Experiments to illustrate the elementary principles of chemistry. New York, 1899. 8vo. Ill.

HINDS, J. I. D.

Inorganic Chemistry, with the Elements of Physical and Theoretical Chemistry. New York and London, 1902. 8vo. Ill.

HINRICHS, G. D.

The Absolute Atomic Weights of the Chemical Elements, established upon the analyses of the Chemists of the Nineteenth Century, and demonstrating the Unity of Matter. St. Louis, Mo., 1901. 8vo, with portrait of Berzelius and 3 plates.

HIORNS, A. H.

Metallography: An Introduction to the Study of the Structure of Metals, chiefly by the aid of the Microscope. With diagrams and numerous full-page plates. London, 1902. 12mo. Ill. 158 pp.

Mixed Metals, or metallic alloys. Second edition. Thoroughly revised and enlarged. New York, 1901. 12mo.

HLASIWETZ, H.

Anleitung zur qualitativen chemischen Analyse. Zwölfte Auflage, durchgesehen und ergänzt von G. Vortmann. Wien, 1899. 8vo.

HÖBER, R.

Physikalische Chemie der Zelle und der Gewebe. Leipzig, 1902. 8vo. Ill.

HÖFER, J.

Die Fabrikation künstlicher plastischer Massen sowie der künstlichen Steine, Kunststeine, Stein- und Cementgüsse. Ausführliche Anleitung zur Herstellung aller Arten künstlicher Massen aus Papier, Papier- und Holzstoff, Cellulose, Gips, Leim, etc. Zweite vollständig umgearbeitete und vermehrte Auflage. Wien, 1898. 8vo. Ill.

HOEK, P. VAN.

Beknopt leerboek der scheikunde. 2 parts. 1897, 1900.

HÖLBLING, V.

Die Fabrikation der Bleichmaterialen. Berlin, 1902. 8vo. Ill.

HOFF, J. H. VAN'T.

Acht Vorträge über physikalische Chemie gehalten auf Einladung der Universität Chicago. Braunschweig, 1902.

The Arrangement of Atoms in Space. Second revised and enlarged edition. With a preface by Johannes Wislicenus, and an appendix: Stereochemistry among Inorganic Substances by Alfred Werner. Translated and edited by Arnold Eiloart. London and New York, 1898. 12mo.

Die Gesetze des chemischen Gleichgewichtes für den verdünnten gasförmigen oder gelösten Zustand. (1885.) Uebersetzt und herausgegeben von G. Bredig. Leipzig, 1900. 8vo. Ill.

Ueber die zunehmende Bedeutung der anorganischen Chemie. Vortrag, gehalten auf der 70. Versammlung der Gesellschaft deutscher Naturforscher und Aerzte zu Düsseldorf. Hamburg und Leipzig, 1898. 8vo.

Vorlesungen über theoretische und physikalische Chemie. Braunschweig, III Theil, 1898–1900. 8vo. Ill.

Zweite Auflage. Braunschweig, 1901. 8vo. Ill.

Lectures on Theoretical and Physical Chemistry. Translated by R. A. Lehfeldt. I. Chemical Dynamics. II. Chemical Statics. III. Relations between properties and composition. London, 1899–1900. 8vo.

Leçons de chimie physique, professées à l'Université de Berlin. Trois parties. Traduites de l'allemand par A. Corvisy. Partie I. Dynamique chimique. Paris, 1898. Partie II. La Statique chimique. Paris, 1889. Partie III. Rélation entre les propriétés et la composition. Paris, 1900. 8vo. Portrait.

Zinn, Gips und Stahl vom physikalisch-chemischen Standpunkt. München, 1901. 8vo. Ill.

HOFMANN, C.
Die Fabrikation der Spirituosen-Extracte. Berlin, 1898. 8vo.

HOFMEISTER, F.
Leitfaden für den praktisch-chemischen Unterricht der Mediciner. Braunschweig, 1899. 8vo.

HOGAN, MRS. LOUISE E., and A. C. TRUE.
History and Present Status of Instruction in Cooking in the Public Schools of New York City. Bulletin No. 56. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1899.

HOLDERMANN, E., und E. KINDLE.
Chemische Reagentien und Reaktionen des deutschen Arzneibuches IV. Zugleich praktisches Rechenbuch bei der Ausführung der quantitativen Bestimmungsmethoden. Berlin, 1901. 8vo.

HOLLAND, J. W.
The Urine and the Clinical Chemistry of the Gastric Contents, the Common Poisons and Milk. Sixth edition, revised and enlarged. Philadelphia, Pa., 1900. Ill.

HOLLARD, A.
La théorie des ions et l'èlectrolyse. Paris, 1900. 8vo. Ill.

HOLLEMAN, A. F.
Leerboek der anorganische chemie. Groningen, 1898. 8vo.

A Textbook of Inorganic Chemistry. Rendered into English by Herman C. Cooper, with the cooperation of the author. New York and London, 1902. 8vo. Ill.

Lehrbuch der Chemie. Autorisirte Deutsche Ausgabe. Zweite verbesserte Auflage. Theil I. Organische Chemie, in Gemeinschaft mit dem Verfasser bearbeitet und herausgegeben von W. Manchot. Leipzig, 1902. 8vo. Ill.

Lehrbuch der Chemie. Theil II. Anorganische Chemie. In Gemeinschaft mit dem Verfasser bearbeitet und herausgegeben von W. Manchot. Leipzig, 1900. 8vo. Ill.

Lehrbuch der organischen Chemie für Studirende an den Universitäten und technischen Hochschulen. Leipzig, 1898. 8vo. Ill.

HOLLEMAN, A. F. [Cont'd.]

A Text-Book of Organic Chemistry. Translated from the Second Dutch edition by A. Jamieson Walker, assisted by Owen E. Mott, with the coöperation of the author. London and New York, 1903. 8vo. Ill.

Practisch-chemische oefeningen. Groningen, 1898. 8vo.

HOLZT, A.

Die Schule des Elektrochemikers. Darstellung der Grundsätze, Hilfsmittel, und Arbeitsverfahren der Elektrochemie. Herausgegeben im Verein mit W. Sander und H. Stapelfeldt. Leipzig, 1898–1900. 8vo. Ill.

HOPKINS, ERASTUS.

The Oil Chemists' Handbook. New York and London, 1900. 8vo.

HOPPE, P.

Ein Beitrag zur Frage des Werthes der Melasse als Futtermittel. Leipzig, 1901. 8vo.

HOPPE-SEYLER, F.

Handbuch der physiologisch- und pathologisch-chemischen Analyse für Aerzte und Studirende. Siebente Auflage, bearbeitet von H. Thierfelder. Berlin, 1903. 8vo. Ill.

HORNBY, JOHN.

The Gas Engineer's Laboratory Handbook. Second edition, revised and enlarged. London and New York, 1902. 8vo.

HORSIN-DÉON.

Traité théorique et pratique de la fabrication du sucre de betterave. Deuxième édition, revue et augmentée. Paris, 1900. 2 vols., 8vo. Ill.

HOSACUS, A.

Grundriss der Chemie. Vierte Auflage, bearbeitet von H. Böttger. Hannover, 1898. 8vo. Ill.

HOURIER, E. et F. MALEPEYRE.

Nouveau manuel complet de la distillation de la betterave, de la pomme de terre et des racines féculentes ou sucrées desquelles on peut extraire de l'alcool, telles que : la carotte, le rutabaga, le topinambour, l'asphodèle etc., etc. Nouvelle édition entièrement refondue, augmentée des nouveaux procédés et appareils de distillation par le prof. Alb. Larbalétrier. (Encyclopédie-Roret). Paris, 1901.

HOVESTADT, H.
Jena Glass and its scientific and industrial applications. Translated and edited by J. D. Everett and Alice Everett. London and New York, 1902.

HOWE, HENRY M.
Metallurgical Laboratory Notes. Boston, 1902. 8vo. Ill.

HUBBARD, E.
Die Verwerthung der Holzabfälle. Zweite vollständig umgearbeitete und vermehrte Auflage. Wien, 1900. 8vo. Ill.

HUBERT, A.
Analyses des matières agricoles. Paris, 1901. 16mo. Ill.

HUBERT, H.
Utilisation directe des gaz de hauts-fourneaux. Paris, 1901.

HUBERT, P.
Album de l'acétylène 1899–1900. Paris, 1899. 8vo. Ill.

HÜBNER, M.
Chemische Vorgänge in der Natur, in wichtigen Gewerbs-Zweigen und im Haushalt des Menschen. Ein Merk- und Wiederholungsbuch für Schulen. Breslau, 1898. 8vo. Ill.

HÜFNER, G.
Ueber den Ursprung und die Berechtigung besonderer Lehrstühle für die physiologische Chemie. Tübingen, 1899. 8vo.

HUGOT, C.
Recherches sur l'action du sodammonium et du potassammonium sur quelques métalloïdes. Paris, 1900. 8vo. Ill.

HUMMEL, J.
Manuel pratique du teinturier. Matières colorantes. Édition française par F. Dommer. Paris, 1898. 16mo.
Bibliothèque des actualités industrielles.

HUMPERT, F.
Leitfaden der Chemie und Mineralogie. Zweite Auflage. Berlin, 1899. 8vo. Ill.

HUNT, C.
Chemical Technology of Gas-Lighting, or chemistry in its application to arts and manufactures. Vol. III. Edited by C. E. Groves and W. Thorp. London, 1900. 8vo.

HUNTINGTON, HARWOOD.

Some Notes on Chemical Jurisprudence. A Digest of Patent-Law Cases involving Chemistry. New York, 1898. 8vo.

HURST, GEORGE H.

Lubricating Oils, Fats and Greases. Their origin, preparation, properties, uses and analyses. London and New York, 1898. roy. 8vo. Ill.

Second edition, enlarged. London and New York, 1902. roy. 8vo. Ill.

Painters' Colours, Oils and Varnishes. Third edition, revised and enlarged. London, 1901.

Soaps; a practical manual for the manufacture of domestic, toilet, and other soaps. London, 1898. 8vo. Ill.

HUTCHISON, ROBT.

Food, and the Principles of Dietetics. Third edition. London, 1901. 8vo. Ill.

HUYSSE, A. C.

Atlas zum Gebrauch bei der mikrochemischen Analyse. Two parts. Leiden, 1900. 8vo.

IDRIS, T. H. W.

Notes on Essential Oils, with special reference to their composition, chemistry and analysis. London, 1898. 12mo.

Second edition. London, 1901.

ILES, MALVERN WELLS.

Lead Smelting The construction, equipment, and operation of lead blast furnaces. And observations on the influence of metallic elements on slags and the scientific handling of smoke. New York, 1902. 12mo.

IMBERDIS, J.

Le papier ou l'art de fabriquer le papier. Traduction en Français de "Papyrus, sive ars conficiendæ papyri" (1693), par A. Blanchet. Avec le texte Latin. Paris, 1899. 12mo.

IMBERT, H.

L'Hydrazine et ses dérivés. Montpellier, 1899. 8vo.

INGLE, HERBERT.

Manual of Agricultural Chemistry. London, 1902. 8vo. Ill.

INGLE, HERBERT and HARRY.
The Chemistry of Fire and Fire Prevention: A Händbook for Insurance Surveyors, Works Managers, and all interested in fire risks and their diminution. New York, 1900. 8vo. Ill.

IRISH, CYRUS W.
Qualitative Analysis for Secondary Schools. New York, 1899. 12mo.

JACKSON, HOLMES C.
Directions for Laboratory Work in Physiological Chemistry. For the use of students in the University and Bellevue Hospital Medical College. New York, 1902. 8vo.

JACOBSEN, L.
Oversigt over den kvalitative Analyses Elementer. Kjøbenhavn, 1900.

JACQUEMIN, G.
Les fermentations rationelles. Vins, cidres, hydromels, alcools. Nancy, 1900. 8vo. Ill.

JACQUET, LOUIS.
La fabrication des eaux de vie. Paris, 18—. 8vo. Ill.

JAFFA, M. E.
Nutrition Investigations at the California Agricultural Experiment Station, 1896–1898. Bulletin No. 84. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1900.

JARRY, R.
Recherches sur la dissociation de divers composés ammoniacaux au contact de l'eau. Paris, 1899. 8vo. Ill.

JAUBERT, GEORGES F.
La garance et l'indigo. Paris, 1900. 8vo.
L'industrie des matières colorantes azoïques. Paris, 1899. 12mo.
L'industrie du goudron de houille. Paris, 1899.
Les matières odorantes artificielles. Paris, 1899.
Les parfums comestibles. Paris, 1900. 16mo.
Produits aromatiques artificiels et naturels. Paris, 1900. 8vo.

JAVET, E.
Chimie. Vingt-quatrième édition, complètement remaniée. Paris, 1902. 12mo. Ill.

JEHN, C.
Tabellarisches Repetitorium für Chemie und Pharmakognosie. Neunte Auflage. Leipzig, 1898. 8vo.

JENNISON, FRANCIS H.
The Manufacture of Lake Pigments from Artificial Colours. A useful handbook for colour manufacturers, dyers, colour chemists, paint manufacturers, drysalters, wall-paper makers, enamel and surface-paper makers. With fifteen plates illustrating the various methods and errors that arise in the different processes of production. London, 1900. 8vo. Ill.

Die Herstellung von Farblacken aus künstlichen Farbstoffen. Autorisirte Uebersetzung aus dem Englischen von R. Rübencamp. Dresden, 1901. 8vo. Ill.

JENSCH, E.
Das Cadmium, sein Vorkommen, seine Darstellung und Verwendung. Stuttgart, 1898. 8vo.
Sammlung chemischer . . . Vorträge.

JETTMAR, J.
Handbuch der Chromgerbung einschliesslich der übrigen Mineralgerbungen mit besonderer Berücksichtigung des Combinationsgerbeverfahrens. Leipzig, 1900. 8vo. Ill. With samples.

Das Färben des lohgaren Leders. Leipzig, 1899. 8vo. Ill.

Praxis und Theorie der Ledererzeugung. Ein Leitfaden für Lohe-, Weiss-, Sämisch- und Glacé-Gerber. Berlin, 1901. 8vo. Ill.

JOANNIS, A.
Cours élémentaire de chimie professé à la Faculté des sciences de Paris. Deuxième édition, revue et corrigée. Paris, 19[illegible]1. 8vo. Ill.

JOCLÉT, V.
Chemische Bearbeitung der Schafwolle, oder das Färben, Waschen und Bleichen der Wolle. Zweite vollständig umgearbeitete und vermehrte Auflage von W. Zänker. Wien, 1901. 8vo. Ill.

JOHANNESEN, OLE, og CARL NICOLAYSEN.

Lærebog i kemiens elementer for gymnasierne. Christiania, 1897.

Andet noget omarb. oplag. Christiania, 1899.

Tredie oplag. Christiania, 1901.

JÖRGENSEN, A.

Alkoholgjæren, Bryggeri-, Brænderi- og Vingjær. En praktisk Vejledning. Kjøbenhavn, 1901. 8vo. Ill.

Die Hefe in der Praxis. Anwendung und Untersuchung der Brauerei-, Brennerei-, und Weinhefe. Berlin, 1901. 8vo. Ill.

JÖRGENSEN, S. M.

Kemiens Grundbegreber oplyste ved Exempler og simple Forsög. Kjøbenhavn, 1902. 8vo.

JOLY, A.

Cours élémentaire de chimie (notation atomique). Chimie générale, metalloïdes. Quatrième édition, revue et completée par Lespicau. Paris, 1898. 8vo. Ill.

Sixième édition, Paris, 1901. 8vo. Ill.

Septième édition. Paris, 1902. 8vo. Ill.

JOLY, A., et R. LESPICAU.

Cours élémentaire de chimie, métaux; chimie organique. Quatrième édition entièrement refondue. Paris, 1902. 8vo. Ill.

JOLY, A., et M. VÈZES.

Osmium et ruthénium. Paris, 1899. 8vo.

See in Section II, Frémy, Edmond, Encyclopédie chimique.

JONES, CHAPMAN.

An Introduction to Science and Practice of Qualitative Chemical Analysis. London, 1898. 8vo.

Practical Inorganic Chemistry for advanced students. New York, 1898.

JONES, HARRY C.

The Elements of Physical Chemistry. New York, 1902. 8vo.

The Freezing Point, Boiling Point, and Conductivity Methods. Easton, Pennsylvania, 1897, 8vo.

Outlines of Electrochemistry. With tables and diagrams. New York, 1901. 4to.

JONES, HARRY C. [Cont'd.]
Principles of Inorganic Chemistry. New York, 1902. 8vo. Ill.
The Theory of Electrolytic Dissociation and Some of its Applications. New York, 1900. 12mo.

JONES, LIONEL M.
Introductory Chemistry for Intermediate Schools. London, 1902. 8vo. Ill.

JONES, M. W.
The Testing and Valuation of Raw Materials used in paint and colour manufactu 900. 12mo.

JORDAN, WHITMAN H.
Dietary Studies at the College in 1895. Bulletin No. 37. U. S. Department culture, Office of Experiment Stations. Washingt 897. 8vo.

JORDIS, E.
Die Elektrolyse wässeriger salzlösungen, mit besonderer Berücksichtigung der in alvanoplastik üblichen Arbeitsweisen. Halle, 1901. 8vo. Ill.

JÜPTNER, HANS VON.
Die Bestimmung des Heizwerthes von Brennmaterialien. Stuttgart, 1898. 8vo, Ill.
Sammlung chemischer und chemisch-technischer Vorträge.
Siderology. The Science of Iron. (The Constitution of Iron Alloys and Iron.) Translated from the German. London, 1902. 8vo.

JÜPTNER, HANS VON und F. TOLDT.
Chemisch-calorische Untersuchungen über Generatoren und Martinöfen. Zweite Auflage. Leipzig, 1900. 8vo. Ill.

JULIAN, FRANK.
A Text-Book of Quantitative Chemical Analysis. St. Paul, Minn., 1902. 8vo. Ill.

KABRHEL, G.
Theorie und Praxis der Trinkwasser-Beurtheilung. München, 1900.

KAUSCH, O.
Die Herstellung und Verwendung von flüssiger Luft. Weimar, 1902.

KELLER, C. C.
Ueber die Werthbestimmung von Drogen und Galenischen Präparaten. Neuere Studien über die Bestandtheile des Secale cornutum. Zürich, 1897. 8vo.

KELYNACK, T. N., and W. KIRKBY.
Arsenical poisoning in beer drinkers. London, 1901. 8vo. Ill.

KERSTING, P. und M. HORN.
Katechismus der chemischen Technologie. Leipzig, 1902.

KIMMINS, C. W.
Chemistry of Life and Health. London, 1892. 12mo.

KIONKA, H.
Grundriss der Toxikologie, mit besonderer Berücksichtigung der klinischen Therapie. Leipzig, 1901. 8vo. Ill.

KIPPENBERGER, C.
Aufgaben einer wissenschaftlichen gerichtlichen Chemie der Gegenwart zugleich eine kritische Besprechung der hierbei in Betracht kommenden neueren Forschungsergebnisse. Berlin, 1900.

KIRCHNER, W.
Handbuch der Milchwirthschaft auf wissenschaftlicher und praktischer Grundlage. Vierte neubearbeitete Auflage. Berlin, 1898. 8vo. Ill.
Die neuesten Erfahrungen auf dem Gebiete des Molkereiwesens. Dresden, 1898. 8vo.

KIRKBY, WILLIAM.
The Evolution of Artificial Mineral Waters. Manchester, 1902.

KITT, M.
Die Jodzahl der Fette und Wachsarten. Berlin, 1902.

KLEIN, JOSEPH.
Chemie. Organischer Theil. Zweite Auflage. Leipzig, 1898. 12mo. Ill.
Chemie. Dritte Auflage. Anorganischer Theil. Leipzig, 1901. 12mo.
Elemente der forensisch-chemischen Ausmittelung der Gifte. Zweite verbesserte Auflage. Hamburg, 1902. 8vo. Ill.

KLIMONT, J. M.
Die synthetischen und isolirten Aromatica. Leipzig, 1899.

KLOEPFER, E.
Untersuchungen über die Wirkung des schwefelsauren Ammoniaks und des Chilisalpeters. Beitrag zur Stickstoffrage. Essen, 1898. 8vo.

KNIGHT, JAMES.
The Self-Educator in Chemistry. Edited by John Adams. London, 1901.

KNIGHT, NICHOLAS.
A Course in Quantitative Chemical Analysis, Gravimetric and Volumetric. New York, 1899.

KNOEVENAGEL, E.
Anleitung zu anorganischen Arbeiten im Laboratorium. Leipzig, 1901. 8vo. Ill.

KNÜPFFER, C.
Chemisches Gleichgewicht und elektromotorische Kraft. Leipzig, 1898.

KOBERT, R.
Practical Toxicology. Translated by L. H. Friedberg. London, 1898. roy. 8vo.

KOEFORD, EMIL.
Lærebog i organisk Chemi for medicinske og pharmaceutiske Studerende. Kjøbenhavn, 1898. 8vo.

KOEFOED, EMIL, og H. SCHJERNING.
Mindre Lærebog i den kvalitative organiske Analyse. Kjøbenhavn, 1901.

KÖHLER, H.
See Lunge, G. Die Industrie des Steinkohlentheers.

KÖLICHEN, K.
Die chemische Dynamik der Acetoncondensation. Leipzig, 1900.

KÖNIG, J.
Die Untersuchung landwirthschaftlich und gewerblich wichtiger Stoffe. Praktisches Handbuch. Zweite neubearbeitete Auflage. Berlin, 1898. 8vo. Ill.

KÖNIG, J. [Cont'd.]

Die Verunreinigung der Gewässer, deren schädliche Folgen, sowie die Reinigung von Trink- und Schmutzwasser. Zweite, vollständig umgearbeitete und vermehrte Auflage. Berlin, 1899. 2 vols. 8vo. Ill.

KOEPPE, H.

Die physikalisch-chemische Analyse der Mineralwässer. Halle, 1898. 8vo.

Physikalische Chemie in der Medicin. Einführung in die physikalische Chemie und ihre Verwerthung in der Medizin. Wien, 1900.

KOHLHAMMER, E.

Uebungsspiele und Anleitung zur qualitativen chemischen Analyse, zum Gebrauche am chemischen Institut der thierärztlichen Hochschule in Berlin. Berlin, 1898. 8vo.

KOHN, R.

Studien und Versuche über physiologische Elektrochemie. Halle, 1899. 8vo.

KOLBE, HERMANN.

Electrolysis of Organic Compounds. London, 1901. 8vo.

KOLBECK, FRIEDRICH.

Metallurgie. *See* Ost, H. Lehrbuch der technischen Chemie.

KOLLER, THEODOR.

Die Conservirung der Nahrungsmittel und die Conservirung in der Gährungstechnik. Stuttgart, 1900. 8vo.

Handbuch der rationellen Verwerthung, Wiedergewinnung und Verarbeitung von Abfallstoffen jeder Art. Zweite, vollständig umgearbeitete und vermehrte Auflage. Wien, 1899. 8vo. Ill.

Utilization of Waste Products ; a Treatise on the Rational Utilization, Recovery, and Treatment of Waste Products of all kinds. Translated from the German second revised edition. With 22 illustrations. London, 1902. 8vo.

KONINCK, L. G. DE.

Résumé de la théorie chimique des types. Liége et Paris, 1865. 12mo.

KONINCK, L. L. DE.
Lehrbuch der qualitativen und quantitativen Mineralanalyse. Deutsche Ausgabe unter Mitwirkung von de Koninck bearbeitet von C. Meineke. Berlin, 1900. 2 vols. 8vo. Ill.
Manipulations chimiques qualitatives et quantitatives préparatoires à l'étude systematique de l'analyse. Liége, 1892. 12mo. pp. 51.

KOPPEL, J.
Die Chemie des Thoriums. Stuttgart, 1901. 8vo.

KOPPESCHAAR, W. F.
Leerboek der chemie e[illegible] harer toepassingen. Achtste druk. Leiden, 1898.
Negende druk. [illegible] 1901. 8vo. Ill.

KOSSEL, A.
Leitfaden für medicinisch-chemische Curse. Vierte, veränderte Auflage. Berlin, 1898. 8vo.

KRAFFT, G.
Kurzes Lehrbuch der Chemie. Organische Chemie. Dritte vermehrte und verbesserte Auflage. Wien, 1900. 8vo. Ill.

KRANDAUER, M.
Katechismus der Bierbrauerei. Leipzig, 1898. 8vo. Ill.

KRAUCH, C.
The Testing of Chemical Reagents for Purity. Authorized translation of the third edition by J. A. Williamson and L. W Dupré. London, 1902.

KREUSLER, U.
Atomgewichtstafeln mit multiplen Werthen, nebst den am häufigsten in Betracht kommenden Moleculargewichten und Umrechnungsfactoren. Zweite verbesserte und vermehrte Auflage. Bonn, 1899. 8vo.

KROBATIN, A. VON.
Lehrbuch der Chemie für die Kadettenschulen. Dritte Auflage. Wien, 1899. 8vo. Ill.
Vierte Auflage. Wien, 1902. 8vo. Ill.

KRÖHNKE, O.
Die Reinigung des Wassers für häusliche und gewerbliche Zwecke. Stuttgart, 1900. 8vo. Ill.

KRÜGER, FR.
Kurzes Lehrbuch der medicinischen Chemie mit Einschluss der medicinisch-chemischen Diagnostik. Wien, 1898. 8vo.

KRUG, T.
Die Induction im chemischen Unterricht. Barmen, 1901. 4to.

KÜHLING, O.
Lehrbuch der Maassanalyse zum Gebrauch in Unterrichtslaboratorien und zum Selbstunterricht. Stuttgart, 1900. 8vo.

KÜSTER, F. W.
Die Bedeutung der physikalischen Chemie für andere Wissenschaften. Göttingen, 1898. 8vo.
Logarithmetische Rechentafeln für Chemiker. Zweite vollständig neu bearbeitete und erweiterte Auflage. Leipzig, 1900. 8vo.

KUNKEL, A. J.
Handbuch der Toxikologie. Jena, 1899–1900. Two parts. 8vo.

KURZES REPETITORIUM der organischen Chemie, speciell für das Bedürfniss des Mediciners und Pharmaceuten bearbeitet. Zweite Auflage. Augsburg, 1898. 12mo. Ill.

LAACHE, S.
Guide pratique de l'analyse des urines. Traduit de l'allemand par X. Francotte. Troisième édition. Paris, 1899. 18mo. Ill.

LAAN, R. VAN DER.
Chemisch-physische onderzoekingen der melk. Utrecht, 1896. 8vo.

LAAR, J. J. VAN.
Lehrbuch der mathematischen Chemie. Mit einer Einleitung von H. W. Bakhuis- Roozeboom. Leipzig, 1901. 8vo. Ill.

LABBÉ, HENRI.
Essais des huiles essentielles. Paris, 1899. 8vo. Ill.

LACHMAN, ARTHUR.
The Spirit of Organic Chemistry. An Introduction to the current Literature of the subject. With an introduction by Paul C. Freer. London and New York, 1899. 12mo.

LACOUR, E.
Les eaux de Versailles. Étude historique, chimique et bactériologique (1895–1899). Paris, 1899. 8vo. Ill.

LA COUX, H. DE.

L'eau dans l'industrie, composition, influences, désordres, remèdes, eaux résiduaires, épuration, analyse. Paris, 1900. 8vo. Ill.

LADD, E. F.

A Manual of Quantitative Chemical Analysis. New York and London, 1898. 12mo.

LAGATU, H., et L. SICARD.

Caractères analytiques des principaux sels minéraux solubles. Montpellier, 1901. 8vo.

Guide pratique et élémentaire pour l'analyse des terres et son utilisation agricole. Avec préface par E. Risler. Montpellier, 1901. 8vo. Ill.

Précis d'analyses volumétriques appliquées aux substances agricoles. Montpellier, 1901.

LAINER, A.

Lehrbuch der photographischen Chemie und Photochemie. Zweite Auflage. Wien, 1899. 8vo. Ill.

LAJOUX, H.

L'eau potable, le lait, le vin. Recherches et documents du laboratoire municipal de Reims. Paris, 1900. 8vo.

LAJOUX, H., et A. GRANDVAL.

Médicaments chimiques organiques. Dosage des alcaloïdes dans les drogues simples et les médicaments. Reims, 1900.

LAMANNA, P. A.

La chimica dell'urina. Capacini, 1901. 8vo. Ill.

I nuovi prodotti chimico-farmaceutici esposti ai medici e farmacisti, la costituzione e struttura molecolare, la preparazione, i caratteri chimici e fisici. Roma, 1898. 12mo.

LAMBERT, THOMAS.

Bone products and Manures. Recent improvements in manufacture of fat, glue, animal charcoal, size, gelatine manures. London, 1901. 8vo. Ill.

Lead and its Compounds. London, 1902. 8vo. Ill.

LAMBUC.

Précis de chimie minèrale. Lyon, 1900. 18mo. Ill.

LANDA, G. A. R.

Cuadro sinóptico de nomenclatura química. Madrid, 1901.

Las Ftaleinas y sus derivados. Madrid, 1902. 8vo.

LANDAUER, JOHN.

Blowpipe Analysis. Authorized English edition, by James Taylor. Third edition. London, 1901. 8vo.

Spectrum Analysis. Authorized English edition, by J. Bishop Tingle. New York and London, 1898. 8vo. Ill.

LANDOLT, HANS.

Das optische Drehungsvermögen organischer Substanzen und dessen praktische Anwendungen. Zweite gänzlich umgearbeitete Auflage unter Mitwirkung von O. Schönrock, P. Lindner, F. Schütt, L. Brendt und T. Posner. Braunschweig, 1898. 8vo. Ill.

Optical Activity and Chemical Composition. Translated with the author's permission by John McCrae. London and New York, 1899. 12mo.

Optical Rotating Power of Organic Substances, and its Practical Applications. Assisted by O. Schönrock, P. Lindner, F. Schütt, L. Brendt, and T. Posner. Second edition, from the German edition, by John H. Long. New York, 1902. 8vo. Ill.

LANGBEIN, GEORG.

Vollständiges Handbuch der galvanischen Metall-Niederschläge (Galvanostegie und Galvanoplastik) mit Berücksichtigung der Kontaktgalvanisierung, Eintauchverfahren, des Färbens der Metalle, sowie der Schleif- und Poliermethoden. Vierte Auflage. Leipzig, 1898. 8vo.

A Complete Treatise on Electro-Deposition of metals, comprising Electro-Plating and Galvanoplastic Operations, the Deposition of Metals by the contact and immersion processes, the coloring of metals, the methods of Grinding and Polishing, as well as Descriptions of the Electric Elements, Dynamo Electric Machines, Thermo-Piles, and of the materials and processes used in every department. Third edition, thoroughly revised and enlarged. With additions by W. T. Brannt. Philadelphia, 1898. 8vo. Ill.

Fourth edition. Philadelphia, 1902. 8vo. Ill.

LANGER, T.
Grundriss der Chemie für Brauer und Mälzer. Dritte Auflage. Leipzig, 1898. 8vo. Ill.

LANGLEBERT, J.
Chimie. Quarante-neuvième édition. Paris, 1899. 16mo.
Cinquante unième édition. Paris, 1902. Ill.

LANGWORTHY, C. F.
Fish as Food. Farmers' Bulletin No. 85. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1898.

LAPPARENT, P. DE.
Étude sur les altérations des couleurs dans la peinture artistique. Paris, 1901. 8vo. Ill.

LARBALÉTRIER, A.
L'alcool au point de vue chimique, agricole, industriel, hygiénique et fiscal. Paris, 1902. 8vo.
Le beurre et la margarine. Paris, 1899.
Manuel d'essais pratiques de chimie agricole. Essais et analyses simplifiées des terres, eaux, engrais, etc. Paris, 1898. 8vo. Ill.
Le sel, les salines et les marais salants. Paris, 1901. 8vo. Ill.
Traité pratique de chimie agricole. Paris, 1900.

LARCHEVÊQUE, M.
Fabrication industrielle de la porcelaine dure. Paris, 1898. 8vo. Ill.

LARMOR, JOSEPH.
Aether and Matter: a Development of the Dynamical Relations of the Aether to Material systems, on the basis of the Atomic constitution of matter, including a Discussion of the Influence of the Earth's Motion on Optical Phenomena. Cambridge, 1901. 8vo.

LASSAR-COHN.
Arbeitsmethoden für organisch-chemische Laboratorien. Ein Handbuch für Chemiker, Mediziner und Pharmazeuten. Dritte, vollständig umgearbeitete und wesentlich vermehrte Auflage. Hamburg, 1901–'02. 8vo. Ill.
Die Chemie des täglichen Lebens. Gemeinverständliche Vorträge. Dritte Auflage. Hamburg, 1898. 8vo. Ill. Vierte Auflage. Hamburg, 1900. 8vo. Ill.

LASSAR-COHN. [Cont'd.]

Chemistry in Daily Life. Popular lectures, translated by M. M. Pattison-Muir. Second edition, revised and augmented. London, 1899.

La chimica nella vita quotidiana. Torino, 1899. 16mo.

Einführung in die Chemie in leichtfasslicher Form. Hamburg, 1899. 8vo. Ill.

De scheikunde in de praktijk. Populair- wetenschappelijke voordrachten. Naar het Duitsch bewerkt door G. de Voogt. Leiden, 1898. 8vo.

An Introduction to Modern Scientific Chemistry in the form of popular lectures suited for University Extension students and general readers. Translated by M. M. Pattison-Muir. London, 1900. 12mo.

Praxis der Harn-Analyse. Anleitung zur chemischen Untersuchungen des Harns. Nebst einem Anhang: Analyse des Mageninhalts. Zweite Auflage. Hamburg, 1898. 8vo. Ill.

LAUBER, E.

Praktisches Handbuch des Zeugdrucks. Vierte neubearbeitete und vermehrte Auflage. Leipzig, 1901. 8vo. Ill.

Band II. Zweite Auflage. Leipzig, 1902. 8vo. Ill.

LAUFFER, E.

Zur Kenntniss des Phellandrens. Göttingen, 1900.

LAURENT, L.

Le tabac, sa culture et sa préparation. Paris, 1901. 8vo. Ill.

LAVOISIER, ANTOINE LAURENT.

The Analysis of Air and Water, being selections from Lavoisier's Elementary Treatise of Chemistry translated and annotated by C. E. Limbarger. Reprints of Science Classics. 1902. Ravenswood, Chicago, Ill. 8vo. Ill.

LEBBIN, G.

Die Giftigkeit der Farbwaaren im Sinne der Ministerial-Verordnung vom 24. August, 1895. Im amtlichen Auftrage bearbeitet. Berlin, 1898. 8vo.

LEBEAU, P.

Le silicium et ses combinaisons artificielles. Paris, 1899.

Le Blanc, Max.

Die Darstellung des Chroms und seiner Verbindungen mit Hilfe des elektrischen Strömes. Halle-a-S., 1902.

Lehrbuch der Elektrochemie. Zweite Auflage. Leipzig, 1900.

Trattato di elettrochimica. Versione di E. Rossi. Milano, 1902. 16mo. Ill.

Le Chatelier.

Cours de chimie industrielle, professé à l'Ecole nationale supérieure des mines. Rédigé par les élèves de l'Ecole. Paris, 1901.

Lecomte, H.

Le café. Culture, manipu luction. Paris, 1899. 8vo. Ill.

Leduc, A.

Recherches sur les gaz. ıoléculaires et états correspondents. Paris, 1898. 8vo.

——— Nouvelles recherches es gaz. Applications. Paris, 1899. 8vo.

Leduc, E.

Chaux et ciments; historique—théories, anciennes et modernes; développement économique—usines; chaux et ciments de grappiers; ciments naturels de laitier et pouzzolanes; Portland artificiel—contrôle technique de l'usine; essais et propriétés générales; mortiers—béton, ciment armé. Paris, 1902. 12mo. Ill.

Lefèvre, Julien.

Carbure de calcium et acétylène. Paris, 1898.

L'éclairage aux gaz, aux huiles et aux acides gras. Paris, 18—. 8vo. Ill.

La liquéfaction des gaz et ses applications. Nantes, 1899.

La spectrométrie. Appareils de mesure. Paris, 18—. 8vo. Ill.

La spectroscopie. Paris, 18—. 8vo. Ill.

Leffmann, Henry, and William Beam.

Select Methods in Food Analysis. Philadelphia, 1901. 12mo. Ill.

Légier, E.

Manuel de fabrication de l'alcool de betterave. Paris, 1901. 8vo. Ill.

Manuel de fabrication du sucre. Paris, 1900. 8vo. Ill.

LEHFELDT, R. A.

A Text-book of Physical Chemistry. With numerous illustrations and diagrams. London, 1900. 12mo. Ill.

LEHMANN, F.

Compendium der anorganischen und organischen Chemie. Berlin, 1898. 8vo. Ill.

LEHNE, A.

Tabellarische Uebersicht über die künstlichen organischen Farbstoffe und ihre Anwendung in Färberei und Zeugdruck. Engänzungsband. Berlin, 1898–'99. roy. 8vo. With dyed fabrics.

LEHNER, S.

Die Kitte und Klebemittel. Fünfte sehr vermehrte und verbesserte Auflage. Wien, 1898. 8vo.

Die Tintenfabrikation. Fünfte sehr vermehrte und verbesserte Auflage. Wien, 1898. 8vo.

LEIDIÉ.

Palladium, Iridium, Rhodium. Paris, 1901. 8vo.

Encyclopédie chimique. Vol. III. Cahier 17, fascicule 3.

LEMMERMANN, O.

Kritische Studien über Denitrificationsvorgänge. Jena, 1901.

LEMOINE, R., et CH. DU MANOIR.

Manuel pratique de la fabrication des couleurs. Matières premières employées dans la préparation des couleurs, essences et vernis. Paris, 1898. 8vo.

LENCAUCHEZ, A.

Études sur divers gaz combustibles utilisés pour divers usages industriels en général et principalement pour la production de la force motrice. Paris, 1899.

Deuxième partie. Recherches, études, observations et essais sur la production des gaz des gazogènes et des hauts- fourneaux, sur leur épuration et leur emploi par les moteurs à gaz. Paris, 1902. 8vo.

LENGFELD, FELIX.

Inorganic Chemical Preparations. New York, 1899. 16mo.

LEON, J. A.

Art of Manufacturing and Refining Sugar. London, 1850.

LEPLAY, HIPPOLYTE.

Études chimiques sur la betterave à sucre. Paris, 1885.

LEROY, E.

Recherches thermochimiques sur les principaux alcaloïdes de l'opium. Paris, 1900.

LE VERRIER, U.

Métallurgie générale. Procédés de chauffage. Combustibles solides, déscription des combustibles, combustibles artificiels, chauffage par électricité, organisation d'une usine métallurgique. Paris, 1902.

LEVI, G.

Materia medica, farmacologia e tossicologia. Milano, 1899. 12mo.

LEVY, S.

Anleitung zur Darstellung organisch-chemischer Präparate. Vierte verbesserte und erweiterte Auflage herausgegeben von A. Bistrzycki. Stuttgart, 1902. 8vo. Ill.

LEWES, VIVIAN B.

Acetylene. A handbook for the student and manufacturer. With marginal notes and many half-tone illustrations and tables. Westminster, 1900. 8vo. Ill.

Cantor Lectures on Acetylene, delivered before the Society of Arts. London, 1899. 8vo. Ill.

LEWES, VIVIAN B., and J. S. S. BRAME.

Laboratory Note Book for Chemical Students. Containing numerous tables and diagrams, and interleaved with blank pages for notes and equations. Westminster, ——. Oblong 8vo. Ill.

LEWKOWITSCH, J.

Chemical Analysis of Oils, Fats, Waxes, and of the commercial Products derived therefrom. Second edition, revised and enlarged. London, 1901. 8vo.

Laboratory Companion to Fats and Oils Industries. London and New York, 1901. 8vo.

LEYSER-HEISS.

Handbuch der Bierbrauerei. Zehnte Auflage, unter Mitwirkung von G. Luff, A. Klöcker, R. Stetefeld und H. Vogel herausgegeben von E. Leyser. Stuttgart, 1900. 8vo. Ill.

LEZIONI DI CHIMICA GENERALE (Reale Università di Modena) anno scolastico 1896–'97. Modena, 1897. 8vo.

L'HUILLIER.

Leçons de chimie. Paris, 1897–'98. 2 vols. 8vo.

LIEBERMANN, H.

Untersuchungen über den Farbstoff der Cochenille. Berlin, 1899. 8vo.

LIEBETANZ, F.

Calcium-carbid und Acetylen. Ihr Wesen, ihre Darstellung und Anwendung, für die Bedürfnisse der Praxis dargestellt. Leipzig, 1897. 8vo. Ill.

LIERKE, E.

Die Kalisalze, deren Gewinnung, Vertrieb und Anwendung in der Landwirthschaft. Stassfurt, 1901. 8vo.

LIESEGANG, R. ED.

Chemische Reactionen in Gallerten. Düsseldorf, 1898. 8vo.

Chimie photographique à l'usage des débutants, traduite et annotée par J. Maupeiral. Paris, 1898. 8vo.

Photographische Chemie. Zweite Auflage. Düsseldorf, 1899. 8vo.

LINDET, L.

La bière. Paris, 18—. 8vo.

LINTNER, C. J.

Grundriss der Bierbrauerei. Zweite neubearbeitete Auflage. Berlin, 1898. 8vo. Ill.

LIOTARD, E.

Les huiles essentielles. Paris, 1900. 12mo.

Manuel pratique et simplifié d'analyse des urines et autres sécrétions organiques. Deuxième édition, revue et augmentée. Paris, 1898. 8vo. Ill.

LIPP, A.

Lehrbuch der Chemie und Mineralogie. München, 1878. 8vo. Ill.

Livache, Ach.

The Manufacture of Varnishes, Oil Crushing, Refining and Boiling and Kindred Industries. Describing the Manufacture and Chemical and Physical Properties of Spirit Varnishes and Oil Varnishes: Raw Materials: Resins: Solvents and Coloring Principles: Drying Oils, their Extraction, Properties and Applications, Oil Refining and Boiling; the Manufacture, Employment and Testing of Various Varnishes. Translated from the French. By John Geddes McIntosh. Greatly extended and adapted to English practice, with numerous original recipes, by the translator. Illustrated with cuts and diagrams. London, 1899. 8vo. Ill.

Lobry van Troostenburg [illegible]n, C. A.

De organisch-chemische sy[illegible], haar macht en haar toekomst. Rede ter aanvaarding va[illegible]et hoogleeraarsambt in de scheikunde aan de gemeentelijke u[illegible]eit te Amsterdam, uitgesproken den 2en November, 1[illegible]. [illegible]sterdam, 1896.

Lockyer, Sir Norman.

Inorganic Evolution as studied by Spectrum Analysis. London, 1900. 8vo. Ill.

Löb, W.

Leitfaden der praktischen Elektrochemie. Leipzig, 1899. 8vo. Ill.

Unsere Kenntniss in der Elektrolyse und Elektrosynthese organischer Verbindungen. Zweite erweiterte und umgearbeitete Auflage. Halle, 1899. 8vo.

Electrolysis and Electrosynthesis of Organic Compounds. Translated by H. W. F. Lorenz. New York, 1899. 8vo.

Loévi, G.

La vinification en Oranie. Montpellier, 1899. 8vo. Ill.

Loew, Oscar.

The Physiological Rôle of Mineral Nutrients. Bulletin No. 18. U. S. Department of Agriculture, Division of Vegetable Physiology and Pathology. Washington, D. C., 1899. 8vo.

Löwenthal, R.

Die Färberei der Spinnfasern nebst Bleicherei und Zeugdruck und einem Anhang: Die Appretur der Gewebe. Leipzig, 1898. 8vo. Ill.

Zweite Auflage. Leipzig, 1901. 8vo. Ill.

Löwenthal, R. [Cont'd.]

Handbuch der Färberei der Spinnfasern. Deutsche Ausgabe des Englischen Handbuchs der Färberei von E. Knecht, C. Rawson und R. Löwenthal. Zweite vermehrte Auflage. Berlin, 1899–1901. 2 vols. 8vo. Ill.

Long, **John** H.

Elements of General Chemistry, with Experiments. Chicago, 1898. 8vo. Ill.

A Text-Book of Urine Analysis for students and practitioners of medicine. Easton, Pa. 1900.

Lorente, F.

Estudio químico-micrográfico y médico sobre la leche. Madrid, 1897.

Lorenz, H.

Neuere Kühlmaschinen, ihre Construction, Wirkungsweise und industrielle Verwendung. Dritte Auflage. München, 1901. 8vo. Ill.

Lorenz, R.

Elektrochemisches Praktikum. Göttingen, 1901. 8vo. Ill.

Lov, A.

Die Lösung der Rauch- und Russfrage durch eine neue Theorie der Rauchverbrennung. Berlin, 1899. 8vo.

Lüpke, R.

Grundzüge der Elektrochemie auf experimenteller Grundlage. Dritte vermehrte und verbesserte Auflage. Berlin, 1899. 8vo. Ill.

Elements of Electro Chemistry treated experimentally. Translated from the second edition by M. M. Patterson Muir. London, 1901. 8vo. Ill.

Luff, A. P., and F. J. M. **Page**.

Manual of Chemistry, inorganic and organic. With an introduction to the study of Chemistry. London, 1900. 8vo. Ill.

Lugol, P.

Cours élémentaire de chimie. Deuxième édition. Paris, 1898. 8vo. Ill.

Cours élémentaire de chimie. Quatrième édition, revue et augmentée. Paris, 1901. 8vo. Ill.

LUGOL, P. [Cont'd.]

Traité élémentaire de chimie. (Chimie inorganique ; chimie organique ; notions d'analyse chimique.) Deuxième édition, revue et corrigée. Paris, 1897. 8vo. Ill.

Troisième édition. Paris, 1900. 8vo. Ill.

LUNGE, GEORG.

Chemisch-technische Untersuchungsmethoden. Band II–III. Vierte Auflage. Berlin, 1900.

Fabrication éléctrolytique de la soude, du chlore, des liqueurs de blanchiment et des chlorates. Traduction française, suivie d'une étude sur les d[illegible]tes systèmes d'évaporation par P. Kienlen. Paris, 1898. [illegible] Ill.

Die Industrie des Steinkohlentheers und Ammoniaks. Vierte umgearbeitete und stark vermehrte Auflage von H. Köhler. Band II, Ammoniak. Braunschweig, 1900. 8vo. Ill.

Coal-Tar and Ammonia ; being the third and enlarged edition of "A Treatise on the Distillation of Coal-tar and Ammoniacal Liquor," with numerous tables, figures, and diagrams. London, 1900. 8vo. Ill.

Taschenbuch für die Soda-, Pottasche- und Ammoniak- Fabrikation. Dritte umgearbeitete Auflage. Berlin, 1900. 8vo. Ill.

Zur Geschichte der Enstehung und Entwickelung der chemischen Industrien in der Schweiz. Zürich, 1901. 8vo.

LUPANO, G.

Nozioni di chimica e mineralogia applicate all'economia domestica, all'industria, all'igiene. Casalmonferrato, 1899. 8vo. Ill.

LUTHER, R.

Die chemischen Vorgänge in der Photographie. Halle, 1899. 8vo.

MAASS, A.

Leitfaden der landwirthschaftlichen Chemie. Zweite verbesserte und vermehrte Auflage. Berlin, 1900. 8vo. Ill.

MACKENSIE, COLIN.

One Thousand Experiments in Chemistry, with illustrations of natural phenomena and practical observations on the manufacturing and chemical processes at present pursued in the successful cultivation of the useful arts. London, 1821. 8vo. Ill.

MACNAIR, D. S.
Introduction to Chemistry. London, 1902. 8vo.

MAERCKER, M.
Handbuch der Spiritusfabrikation. Siebente vollständig neubearbeitete Auflage. Berlin, 1898. 8vo. Ill.
Guide du distillateur. Traduit par E. Leplace. Paris, 1899.
Guide pratique du distillateur. Traduit de l'allemand. Paris, 1901. 8vo. Ill.

MAGNANINI, G.
Appunti di chimica generale organica ed inorganica. Dalle lezioni dettate nella R. Università di Modena nell'anno 1897–1898 raccolte da R. Curbone, G. Zironi, e R. Balli. Modena, 1898. 8vo.

MAGNIER DE LA SOURCE, L.
Analyse des vins. Paris, 18—. 8vo.

MAHRENHOLTZ, ADOLF.
Die agrikulturchemischen Übungen an Landwirtschaftsschulen. Zweite Auflage. Liegnitz, 1901. 8vo. Ill.

MAI, J.
Vademecum der Chemie. Repetitorium der anorganischen, organischen und analytischen Chemie. Zweite volkommen veränderte Auflage. Mannheim, 1899. 8vo.

MALEPEYRE, F.
Nouveau manuel complet de la fabrication des colles. Nouvelle édition entièrement refondue par H. Bertran, 1901. 12mo. Ill.

MALLET, J. W.
The Physiological Effect of Creatin and Creatinin and their Value as Nutrients. Bulletin No. 66. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1899.
Report on an Investigation of Analytical Methods for distinguishing between the Nitrogen of Proteids and that of the simpler Amids or Amido-Acids. With a chapter on the separation of Flesh Bases from Proteid matters by means of bromin. By H. W. Wiley. Washington, 1898.
See in Section VII, Bulletins of the Division of Chemistry.

MALMBORG, C. VON.
Om Acetylenbelysning. Stockholm, 1899. 8vo. Ill.

MALMÉJAC, F.
L'eau dans l'alimentation. Avec préface par F. Schlagdenhauffen. Paris, 1902. 8vo. Ill.

MANGET, CH.
Tableaux synoptiques pour l'analyse et l'examen des conserves alimentaires. Paris, 1902. 16mo. Ill.

MANN, G.
Kryoskopische Untersuchungen. Heidelberg, 1901.

MANN, J. D.
Forensic Medicine and Toxicology. Second edition, revised and enlarged. London, 1898. 8vo.

MANUEL SUISSE DES DENRÉES ALIMENTAIRES. Méthodes d'analyse et données pour l'appréciation des denrées alimentaires et objets d'usage domestique. Ouvrage élaboré à la demande du Département fédéral de l'intérieur par la Société des Chimistes analystes suisses. Berne, 1900. 8vo.

MAQUINNE, L.
Les sucres et leurs principaux dérivés. Paris, 1900. 8vo.

MARCO, FELICE.
Nozioni di chimica ad uso specialmente dei licei. 13. edizione rifatta e migliorata. Torino, 1899. 8vo. Ill.
Third reprint of 13th edition in 1902.

MARCUCCI, LORENZO.
Saggio analitico-chimico sopra i colori e minerali etc. Con note di Pietro Palmaroli. Milano, 1833. 16mo.

MARESCALCHI, A.
Il vino davanti alla chimica, alla legge ed all' igiene, aggiunte lecite ed illecite. Casale, 1899. 12mo.

MARGAT-L'HUILLIER, L.
Leçons de chimie (Métalloïdes). Dieuxième édition. Paris, 1900. 8vo. Ill.

MARIGNAC, J. C. GALISSARD DE.
Œuvres complètes de J. G. de M. Publiées par E. Ador. Genève, Paris, and Berlin, 1902. 2 vols. 4to. Portrait and ill.

MARION, F., et MANGET.
Tableaux synoptiques pour l'analyse des farines. Paris, 1901. 12mo. Ill.

MARPILLERO, K.
Il gas illuminante, sua fabbricazione, applicazione, sottoprodotti. Genova, 1899. 4to. Ill.

MARTEL, P.
Formulaire élémentaire d'analyses des substances alimentaires. Boisson et produits divers employés dans les hopitaux, hospices et autres établissements de bienfaisance. Constantine, 1900. 8vo.

MARTIN, G. H.
Elementary Chemical Theory. London, 1902. 8vo.

MARTIN, WALTON, and WM. H. ROCKWELL.
Chemistry and Physics; a manual for students and practitioners. London, 1901. 8vo. Ill.

MARTZ, F.
Guide pratique pour les analyses de chimie physiologique. Paris, 1899. 18mo. Ill.

MAS Y ZALDUA, L.
Lecciones de química e industria militar, explicadas en la escuela superior de guerra. Segunda edicion, corregida y aumentada. Madrid, 1900. 3 vols. 8vo. Ill.

MASCAREÑAS, E.
El aire liquido. Barcelona, 1900. 8vo. Ill.

MASON, WILLIAM P.
Examination of Water (Chemical and Bacteriological). New York and London, 1899. 12mo. Ill.

Water Supply. Considered principally from a Sanitary Standpoint. With Tables, Diagrams, and Plates. Third edition, rewritten. New York, 1902. 8vo.

MASSOT, W.
Kurze Anleitung zur Appretur-Analyse. Berlin, 1900. 8vo. Ill.

MAS Y GUINDAL, J.

Memorandum de sinonimias, procedencias, nombres cientificos y vulgares de los productos químicos, vegetales o animales, plantas y sus partes y preparaciones de aplicacion à la farmacia. Madrid, 1901. 4to.

MATHET, L.

Traité de chimie photographique. Paris, 1902. 2 vols. 8vo.

MATRICULATION MODEL ANSWERS IN CHEMISTRY, being the London University Matriculation Papers in Chemistry from January, 1894, to June, 1902; with answers. London, 1902. 8vo.

MATTHEWS, CHARLES G.

Manual of Alcoholic Fermentation and allied Industries. London, 1902. 8vo. Ill.

MAYER, A.

Lehrbuch der Agrikulturchemie in Vorlesungen zum Gebrauche an Universitäten und höheren landwirthschaftlichen Lehranstalten, sowie zum Selbststudium. Fünfte verbesserte Auflage. Heidelberg, 1901.

MAYOW, J.

Untersuchungen über den Salpeter und den salpetrigen Luftgeist, das Brennen und das Athmen (1674). Herausgegeben von F. G. Donnan. Leipzig, 1902. Portrait. Ill.

MAZÉ, P.

Evolution du carbone et de l'azote dans le monde vivant. Paris, 1899.

MAZZARA, G.

Appunti di chimica generale, dalle lezioni dettate nella R. Università di Parma 1899–1900. Parma, 1900. 8vo.

Lezioni di chimica generale dettate nella R. Università di Parma nell' anno accademico 1898–1899. Parma, 1899. 8vo. Ill.

MEADE, R. K.

Chemical and Physical Examination of Portland Cement. Easton, Pa., 1901. 12mo. Ill.

MEDICUS, L.
Einleitung in die chemische Analyse. Zum Gebrauche beim Unterricht in chemischen Laboratorien. Heft 1, Qualitative Analyse. Neunte Auflage. Tübingen, 1898. 8vo.
Elfte Auflage. Tübingen, 1901. 8vo. Ill.
Heft 2, Maassanalyse. Sechste Auflage. Tübingen, 1895.
Heft 3, Kurze Anleitung zur Gewichtsanalyse. Vierte Auflage. Tübingen, 1900.
Heft 4, Chemisch-technische Analyse. Tübingen, 1891. 8vo.

MEHRING, H.
Kurzgefasster Leitfaden der Agriculturchemie, mit einem Hinweis auf die Beziehungen der Bakteriologie der Landwirthschaft. Bonn, 1900. 8vo.

MEIJER, H. A.
Beknopt Leerboek der organische Chemie. Groningen, 1900. 8vo.

MEIJERINK, W.
Beknopt leerboek der scheikunde. 2e verb. druk. Zwolle, 1895.

MELDOLA, RAPHAEL.
Inorganic Chemistry, non-metallic and metallic elements. Revised to date by J. Castell Evans. Fifth edition. London, 1900.

MELE, B.
Contributo allo studio delle analisi chimiche delle acque potabili. Napoli, 1898. 8vo.

MELLMANN, P.
Chemie des täglichen wirtschaftlichen Lebens. Leipzig, 1900. 8vo.
Chemisch-technisches Lehrbuch des Beizens, Bleichens, Schleifens, Polirens und Lackirens der Hölzer, nebst einer Einführung in die Chemie und in den Bau der Hölzer. Berlin, 1899. 8vo. Ill.

MÉMORIAL des manufactures de l'état. Tabacs; allumettes. Nancy, 1901. Vol. III. 8vo. Ill.

MENNICKE, H.
Zur Verwerthung, speciell der Wiedergewinnung des Zinns von Weissblechabfällen. Stuttgart, 1902. 8vo.

MERCIER, G.

Guide pratique pour l'analyse des urines. Deuxième édition. Paris, 1898. 12mo. Ill.

Troisième édition. Paris, 1901. 8vo. Ill.

MERZ, H.

Der Phosphor und die Phosphorsäure. Burgdorf, 1898. 8vo.

METHODEN ZUR BESTIMMUNG der Gasausbeute aus Calciumcarbid. Herausgegeben vom Deutschen Acetyl-Verein. Halle, 1900. 8vo. Ill

METHODEN ZUR UNTERSUCHUNG der Kunstdüngemittel. Herausgegeben vom Verein Deutscher Dünger-Fabrikanten. Zweite vermehrte und verbesserte Auflage. Berlin, 1898.

MEUSEL, EDUARD.

Darf wissenschaftliche Raumchemie noch weiter das Raummass ignoriren? Liegnitz, 1898. 8vo.

Die Zusammensetzung der chemischen Elemente theoretisch und experimentell unter Beweis gestellt. Liegnitz, 1902.

MEUSSER, A.

Zur Kenntniss der Erythronsäuren. Abbau des Irosaccharins. Berlin, 1901.

MEYER, H.

Determination of Radicals in Carbon Compounds. Authorized translation by J. B. Tingle. New York, 1899. 8vo.

MEYER, LOTHAR.

Grundzüge der theoretischen Chemie. Dritte Auflage herausgegeben von C. Rimbach. Leipzig, 1902. 8vo. Ill.

Outlines of Theoretical Chemistry. Translated by P. Phillips Bedson and W. Carliton Williams. With folding plates and many tables. Second edition. London, 1899. 8vo. Ill.

MEYER, OSCAR EMIL.

The Kinetic Theory of Gases. Elementary Treatise, with Mathematical Appendices. Translated from the second revised edition by Robert E. Baynes. London, New York, and Bombay, 1899. 8vo.

MEYER, V. und JACOBSON, P.
Lehrbuch der organischen Chemie. Band II: Chemie der Kohlenstoffringe, in 2 Theilen. Theil 2, Abtheilung I: Gruppe der mehrkernigen Benzolderivate von P. Jacobson u. A. Reissert. Leipzig, 1901. 8vo.
Vol. I, 1893; vol. II, parts I and 2, 1894–1896; part 3, 1902.

MEZ, C.
Mikroskopische Wasseranalyse. Anleitung zur Untersuchung des Wassers, mit besonderer Berücksichtigung von Trink- und Abwasser. Berlin, 1898. 8vo. Ill.

MICHEL, C.
Lehrbuch der Bierbrauerei, nach eigenen Erfahrungen unter Berücksichtigung der pneumatischen Mälzerei, der Vacuumgährung, der Hefereinzucht, etc. Dritte Auflage. Augsburg, 1901. roy. 8vo. Ill.

MICHOTTE, F., et E. GUILLAUME.
Traité de la fabrication industrielle des eaux gazeuses et des boissons qui s'y rattachent. Paris, 1900. 18mo. Ill.

MILDE, E.
Ueber Aluminium und seine Verwendungen. Stuttgart, 1899. 8vo. Ill.

MILK AS FOOD. Farmers' Bulletin No. 74. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1898.

MILLER, ALFRED STANLEY.
A Manual of Assaying. The Fire Assay of Gold, Silver, and Lead, including amalgamation and chlorination tests. New York, 1900. 12mo. Ill.

MILLER, EDMUND H.
The Calculations of Analytical Chemistry. New York, 1900. 8vo.

MILLER, WILHELM VON, und H. KILIANI.
Kurzes Lehrbuch der analytischen Chemie. Vierte Auflage. Bearbeitet von H. Kiliani. München, 1900. 8vo. Ill.

MILLIAU, E.
Précis d'analyse chimique des matières grasses agricoles. Marseille, 1898. 8vo.

Minet, Adolphe.

Analyses électrolytiques. Paris, 1899. 8vo. Ill.

L'Électrochimie; production électrolytique des composés chimiques. Paris, 1898. 16mo.

L'Electrométallurgie. Voie humide et voie sèche. Paris, 18—. 8vo. Ill.

Galvanoplastie et galvanostégie. Paris, 1901. 8vo. Ill.

Die Gewinnung des Aluminiums und dessen Bedeutung für Handel und Industrie. Ins Deutsche übertragen von E. Abel. Halle, 1902.

Théories de l'électrolyse. Paris, 1898. 16mo.
Encyclopédie scientifique des Aide-Mémoire.

Traité théorique et pratique d'électro-chimie, constantes chimiques, mécaniques et électriques, systèmes électrolytiques, lois générales de l'électrolyse, théorie de l'électrolyse, traitement électrolytique des composés chimiques, électrolyse appliquée à la chimie organique, réaction chimique de l'étincelle et de l'effluve électriques. Paris, 1900. 8vo. Ill.

Minozzi, A.

Fosfati, perfosfati e concimi fosfatici. Milano, 1902. 16mo. Ill.

Mirat, S. B.

Tratado elemental de química general y descriptiva con arreglo á los últimos adelantos de esta ciencia. Sexta edicion, corregida y aumentada. Valladolid, 1897. 4to. Ill.

Mitchell, C. Ainsworth.

Flesh Foods, with methods for their chemical, microscopical, and bacteriological examination. London, 1900.

Mitscherlich, E.

Ueber das Benzin und die Verbindungen desselben (1834). Herausgegeben von J. Wislicenus. Leipzig, 1898. 8vo.

Mitteregger, J.

Lehrbuch der Chemie. Siebente Auflage. Wien, 1899. 8vo. Ill.
Achte Auflage. Wien, 1901.

Miyares, A. R.

La Tintoreria al alcanze de todo el mundo. Conocimiento práctico de los mordientes empleados en dicho arte; manera di purificarlos y aplicarlos; anilina, sus aplicaciones tintoriales, etc. 2 edicion. Barcelona, 1901. 4to.

MODERN AMERICAN TANNING. Practical treatise on the manufacture of leather, compiled from original articles describing modern methods, printed in "Hide and Leather," and written by well-known tannery foremen, superintendents, and chemists. Chicago, 1902. 8vo.

MODERN BLEACHING AND FINISHING. By a practical working bleacher. With figures and tables. Manchester, 1901. 12mo. Ill.

MOISSAN, H.

Der elektrische Ofen. Uebersetzt von Th. Zettel. Zweite Auflage mit Anhang: Nachträge zum elektrischen Ofen. Berlin, 1900. 8vo. Ill.

Le fluor et ses composés. Paris, 1900. 8vo. Ill.

Das Fluor und seine Verbindungen. Autorisirte deutsche Ausgabe übersetzt von T. Zettel. Berlin, 1900. 8vo. Ill.

MOISSAN, H., et L. OUVRARD.

Le nickel. Paris, 18—. 8vo.

MONDEVILLE, HENRI DE.

HERING, J. Kosmetik nach Heinrich de Mondeville (Vierzehntes Jahrhundert). Berlin, 1898. 8vo.

WERNICKE, R. Aus dem Antidotarium (Vierzehntes Jahrhundert). Berlin, 1897. 8vo.

MONDINI, S.

Produzione e commercio del vino in Italia Milano, 1899. 12mo.

MONTGOMERY, J., and R. B. SMITH.

Laboratory Manual of Elementary Chemistry. Ann Arbor, Michigan, 1897. 8vo. Interleaved.

MOOR, C. G.

Suggested Standards of Purity for Foods and Drugs. London, 1902. 12mo.

MORGAN, JAMES A.

Tables for quantitative metallurgical Analysis for laboratory use. London, 1899. 8vo.

MORGAN, J. LIVINGSTON R.

The elements of Physical Chemistry. New York and London, 1898. 12mo.

Second edition. New York and London, 1902. 12mo.

MORLEY, H. FOSTER.

See in Section II, Watts' Dictionary of Chemistry, revised.

MOUNEYRAT, A.

Nouvelle méthode générale de préparation des carbures d'hydrogène chlorés, bromés et chlorobromés de la série cyclique. Paris, 1899. 8vo.

MOUREU, CH.

Détermination des poids moléculaires (constantes physiques utilisées). Paris, 1899.

Notions fondamentales de chimie organique. Paris, 1902. 8vo.

MOURGUES, LUIS E.

El Agua de Peñuelas como fuerza motriz y su esterilizacion por el ozone. Informe dado a la illustre municipalidad de Valparaiso. Instituto químico municipal de Valparaiso. n. d. (1899). 8vo.

MOURLOT, A.

Constantes physiques utilisées pour la détermination des poids moléculaires. Paris, 1899. 8vo. Ill.

Recherches sur les sulfures métalliques. Paris, 1899. 8vo.

MÜLLER, GUSTAV.

Die chemische Industrie in der deutschen Zoll- und Handelsgesetzgebung des 19. Jahrhunderts. Ein Beitrag zum Studium der deutschen Wirthschaftsgeschichte. Berlin, 1902. 4to.

MÜLLER-THURGAU, H.

Die Herstellung unvergorener und alkoholfreier Obst- und Traubenweine. Fünfte umgearbeitete Auflage. Frauenfeld, 1898. 8vo.

MUIR, MATTHEW MONCRIEFF PATTISON.

The Story of the Wanderings of Atoms, especially those of Carbon. London, 1899.

See also in Section II, Watts' Dictionary of Chemistry, revised.

MULLER, J. A.

Précis de chimie analytique. Paris, 1900. 16mo.

MUNOZ DEL CASTILLO, J.
Ensayo acerca de la significacion de las leyes de Dulong y Petit, Mendeleeff y Zenger. Madrid, 1899. Plates.

MUROE, CHARLES E., and THOMAS M. CHATARD. [Editors.]
Twelfth Census of the United States. Manufactures. Chemicals and allied products. Census Bulletin, No. 210. Washington, D. C., 1902. 4to.

MURRAY, D. A.
Atoms and Energies. New York, 1901. 12mo.

MUSPRATT, SHERIDAN.
Theoretische, practische und analytische Chemie, von F. Stohmann und B. Kerl. Vierte Auflage von H. Bunte. Braunschweig, 1886–190–. 7 vols. 8vo. Ill.

MUTER, JOHN.
A Short Manual of Analytical Chemistry, qualitative and quantitative, inorganic and organic. Following a course of instruction given in the laboratories of the South London School of Pharmacy. Eighth edition. London, 1898. 8vo. Ill.

MYRICK, HERBERT.
The American Sugar Industry. A practical manual on the production of sugar beet and sugar cane, and on the manufacture of sugar therefrom. New York, 1899. 4to.

MYRICK, HERBERT, and W. C. STUBBS.
Sugar Industry of America, its past, present and future. New York, 1897.

NAGL, A.
Das Wichtigste aus der Chemie der Metalloïde. Dritte Auflage. Mittweida, 1898. 8vo. Ill.

NAMIAS, RODOLFO.
La chimica fotografica. Modena, 1898. 8vo.

Manuale teorico-pratico di chimica fotografica. Seconda edizione. Modena, 1901. 8vo.

Chimie photographique. Manuel théorique et pratique traduit de l'Italien par E. Jacquez. Paris, 1902. 8vo.

NAUDIN, LAURENT.

Fabrication des vernis. Applications à l'industrie et aux arts. Paris, 1893. 8vo. Ill.

NAYLOR, W.

Trades Waste, its treatment and utilization with special reference to the prevention of river pollution. A handbook for borough engineers, surveyors, architects, and analysts. London and New York, 1902. 8vo. Ill.

NEFGEN, A.

Beiträge zur Chemie des S[illegible]ers. Rostock, 1897. 8vo.

NERNST, W.

Theoretische Chemie vom Standpunkt der Avogadro'schen Regel und der Thermodynamik. Zweite Auflage. Stuttgart, 1898. 8vo. Ill.

Dritte Auflage. Stuttgart, 1900. 8vo. Ill.

Ueber die Bedeutung elektrischer Methoden und Theorien für die Chemie. Göttingen, 1901.

NEUBAUER und VOGEL.

Anleitung zur qualitativen und quantitativen Analyse des Harns. Zehnte Auflage. Analytischer Theil. Qualitative Abtheilung. In dritter Auflage bearbeitet von H. Huppert. Wiesbaden, 1898. 8vo. Ill.

NEUBERGER, H., et H. NOALHAT.

Technologie du pétrole. Paris, 1899. 2 vols. 8vo.

Technology of Petroleum. The Oil Fields of the World; their History, Geography, and Geology, Annual Production, Prospection, and Development. Oil-well Drilling. Transport of Petroleum by Sea and Land. Storage of Petroleum. Translated from the French by John Geddes McIntosh. London, 1901. 8vo. Ill.

NEUMANN, BERNHARD.

Gasanalyse und Gasvolumetrie. Anleitung für Versuche im chemisch-technischen Practicum und zum Selbststudium. Leipzig, 1901. 8vo. Ill.

The Theory and Practice of Electrolytic Methods of Analysis. Translated by J. B. C. Kershaw. London and New York, 1898.

MANN, C.
ır Isomerie der Fenchenderivate. Göttingen, 1902.

ELL, LYMAN C.
perimental Chemistry. Boston, 1900. 12mo. Ill.

TH, G. S.
emical Lecture Experiments. Non-metallic elements. New edition. London, 1899.

Manual of Chemical Analysis, qualitative and quantitative. London, New York and Bombay, 1898.

OL, ROBERT.
say on Sugar and Treatise on Sugar Refining as practiced in Clyde Refineries. London, 1865. 4to.

HOLSON, H. H., and S. AVERY.
boratory Exercises, with outlines for the study of chemistry. New York, 1899. 8vo.

OLLE.
Matières colorantes et microbes. Paris, 1898.

CE DE ST. VICTOR.
See Colson, R.

CE, NICÉPHORE.
See Colson, R.

TZKI, R.
emie der organischen Farbstoffe. Vierte vermehrte Auflage. Berlin, 1901. 8vo.

Chimie des matières colorantes organiques. Traduit sur la troisième édition allemande par Ch. Vancher, C. Farra et A. Guyot. Avec préface de C. Friedel et E. Noelting. Paris, 1901. 8vo.

WENGLOWSKI, G. H.
himie des manipulations photographiques. Photocopies positives. Paris, 1899. 16mo.

IER, H., et ED. LAVAL.
es explosifs, les poudres, les projectiles d'exercise, leur action et leurs effets vulnérants. Paris, 1899. 12mo. Ill.

Noel, C., L. Durandeau, et L. Triadou.

Les industries agricoles. Brasserie, distillerie, sucrerie. Paris, 1898. 8vo. Ill.

Norden, K.

Ueber den Vorgang an der Aluminium-Anode. Ein Beitrag zur elektrochemischen Uniformung von Wechselstrom in Gleichstrom. Berlin, 1899. 8vo.

Noyes, Arthur A.

General Principles of Physical Science. An Introduction to the Study of the General Principles of Chemistry. New York, 1902. 8vo.

Noyes, William A.

The Elements of Qualitative Analysis. Fourth edition. New York, 1897.

Fifth edition. New York, 1901.

Organic Chemistry for the Laboratory. Easton, Pa., 1900.

Nunoz, S. G.

Manual de explosivas. Madrid, 1902.

Obach, E.

Die Guttapercha. Mit einem Vorwort von K. Schumann. Dresden, 1899. 8vo. Ill.

O'Connor, H.

Gas-Engineer's Pocketbook. Comprising tables, notes, and memoranda relating to the manufacture, distribution, and use of coal gas and the construction of gas-works. London, 1898. 8vo. Ill.

Odifredi, C.

Compendio di chimica agraria. Torino, 1900. 8vo.

Œchsner de Coninck, François.

La chimie de l'uranium. Historique, comprenant les recherches principales effectuées sur l'uranium et ses composés de 1872 à 1902. Deuxième édition. Montpellier, 1902. 8vo.

Eléments de chimie des métaux. Paris, 1900. 16mo.

Notes et documents de chimie générale. Paris, 1902. 8vo.

Prémières notions de chimie des métalloïdes. Paris, ——. 16mo.

OETTEL, FELIX.

Introduction to Electro-Chemical Experiments. Translated by Edgar F. Smith. Philadelphia, 1897. 12mo. Ill.

Practical Exercises in Electro-Chemistry; translated with the author's sanction by Edgar F. Smith. Philadelphia, 1897. 12mo. Ill.

OETTLI, J.

Principes de chimie générale. Quatrième édition. Lausanne, 1901. 8vo.

OGDEN, J. B.

Clinical examination of the urine and urinary diagnosis. London, 1901. 8vo. Ill.

OGG, A.

Ueber das chemische Gleichgewicht zwischen Amalgamen und Lösungen. Göttingen, 1898.

OGIER, J.

Traité de chimie toxicologique. Paris, 1899. 8vo. Ill.

OHLIGMACHER, C.

Beiträge zur Kenntniss des Carvons. Göttingen, 1898.

OHLMÜLLER, W.

Guide pratique pour l'analyse de l'eau. Analyse chimique, micrographique et bactériologique. Traduit d'après la deuxième édition allemande par L. Gautier. Paris, 1898. 8vo. Ill.

OILMEN'S SUNDRIES, AND HOW TO MAKE THEM; being a collection of practical recipes for blacking, boot creams and polishes, harness oils, pastes and polishes, leather dressings and renovators, starch glazes, blues, stove pastes, starch tints, straw-hat polishes, metal and plate polishes, furniture creams, wood fillers, floor waxes and finishes, inks, pastes, glues, and gums, blackboard slating, disinfectants, cloudy ammonia, insecticides, hearthstone squares, etc. London, 1901. 12mo.

OILS, TALLOW, AND GREASE FOR LUBRICATION, ETC.; their practical compounding. By an expert oil refiner. London, 1898. 8vo.

OLDBERG, OSCAR.

Inorganic Chemistry, General, Medical and Pharmaceutical, Theoretical and Practical. A text-book and laboratory manual in two volumes. Chicago, 1900. 8vo.

OPPELT, R.

Lehrbuch der Chemie, chemischen Technologie, Waarenkunde und mechanischen Technologie. 3 vols. Wien, 1900. 8vo. Ill.

OPPENHEIMER, C.

Chemische Technik für Aertzte. Berlin, 1899. 8vo.

Ferments and their Action. A text-book on the Chemistry and Physics of fermentative Changes. London, 1901.

Grundriss der anorganischen Chemie. Zweite Auflage. Leipzig, 1901. 8vo.

Grundriss der organischen Chemie. Zweite Auflage. Berlin, 1898. 8vo.

Dritte Auflage. Leipzig, 1902. 8vo.

ORSCHIEDT, H.

Aus der Werkstätte der Natur. Allgemeinverständliche Betrachtungen wichtiger, meist chemischer Naturerscheinungen zum Zwecke der Selbstbelehrung und Unterhaltung. Berlin, 1898. 8vo. Ill.

OST, H.

Lehrbuch der technischen Chemie. Mit einem Schlussabschnit "Metallurgie" bearbeitet von Friedrich Kolbeck. Dritte, vollständig umgearbeitete Auflage. Hannover, 1898. 8vo. Ill.

Lehrbuch der chemischen Technologie. Mit einem Schlussabschnit "Metallurgie" von F. Kolbeck. Vierte umgearbeitete Auflage des bisherigen "Lehrbuch der technischen Chemie." Hannover, 1900. 8vo. Ill.

OSTWALD, WILHELM.

Grundlinien der anorganischen Chemie. Leipzig, 1900. 8vo. Ill.

Principles of Inorganic Chemistry. With numerous tables and figures. Translated, with the author's sanction, by Alexander Findlay, M. A. London, 1902. 8vo.

Grundriss der allgemeinen Chemie. Dritte umgearbeitete Auflage. Leipzig, 1899. 8vo. Ill.

Lehrbuch der allgemeinen Chemie. Zweite umgearbeitete Auflage. Leipzig, 1896–1899. 2 vols. 8vo. Ill.

Die Wissenschaftlichen Grundlagen der analytischen Chemie, elementar dargestellt. Dritte, vermehrte Auflage. Leipzig, 1901. 8vo. Ill.

OSTWALD, WILHELM. [Cont'd.]

The Scientific Foundations of Analytical Chemistry, treated in an elementary manner. Translated with the author's sanction by George McGowan. Second English from the second German edition. London, 1900. 12mo.

Elementi scientifici di chimica analitica. Tradotta sulla terza editione tedesca da A. Bolis. Milano, 1901. 16mo.

OSTWALD, W. und R. LUTHER.

Hand- und Hülfsbuch zur Ausführung physiko-chemischer Messungen. Zweite Auflage. Leipzig, 1902. 8vo. Ill.

OTTAVI, E., e A. MARESCALCHI.

I residui della vinificazione. Casale Monferrato, 1901. 12mo.

OTTAVI, O.

Enologia teorico-pratica. Monografia sui vini da pasto e da commercio rossi e bianchi, comuni da taglio e scelti e sui vini di lusso asciutti, liquorosi e spumanti. Terza edizione riveduta da A. Marescalchi. Casale, 1898. 8vo. Ill.

OTTO, R.

Grundzüge der Agrikulturchemie. Theil 1: Atmosphäre und Boden. Berlin, 1898. 8vo. Ill.

PAAL, M.

Zur Kenntniss der Albuminpeptone. Erlangen, 1901. 4to. (Pr. Luitp. Festschrift.)

PAGEL, A.

Chemie und landwirthschaftliche Nebengewerbe. Siebente Auflage, bearbeitet von G. Meyer. Leipzig, 1901. 8vo. Ill.

PAOLI, A.

Analisi chimica qualitativa ad uso dei gabinatti di chimica. Livorno. 1899.

PAPPENHEIM, A.

Grundriss der Farbchemie zum Gebrauch bei mikroscopischen Arbeiten. Berlin, 1900. 8vo.

PARK, JAMES.

The Cyanide Process of Gold Extraction. A Text-Book for the use of mining students, metallurgists and cyanide operators. First edition, revised and enlarged from the Third edition published in New Zealand. London, 1900. 8vo.

PARMENTIER.
See Balland, A.

PARNICKE, A.
Die maschinellen Hilfsmittel der chemischen Technik. Zweite vermehrte und verbesserte Auflage. Frankfurt a. M., 1898. 8vo.

PARRISH, S.
Chemistry for Organized Schools of Science. Containing numerous examples, diagrams and cuts. With an introduction by D. Forsyth. New York, 1899. 12mo.

PARRY, ERNEST J.
The Chemistry of Essential Oils and Artificial Perfumes. With numerous diagrams and tables. London, 1899. 8vo. Ill.

PARTHEIL, A.
Kurzgefasstes Lehrbuch der Chemie für Mediciner und Pharmaceuten. Bonn, 1901. 8vo. Ill.

PASSILLY, E.
L'atmosphère terrestre. Paris, 1899. 8vo.

PASSON, M.
Agrikulturchemisch-analytisches Taschenbuch. Berlin, 1898. 12mo.
Katechismus der Agrikulturchemie. Siebente neubearbeitete Auflage. Leipzig, 1901. 8vo. Ill.
Das Thomasmehl, seine Chemie und Geschichte. Neudamm, 1900.

PASTEUR, LOUIS.
Researches on the molecular Asymmetry of Natural Organic Products, 1860. London, 1897. 8vo.
Alembic Club Reprint.

PATERSON, DAVID.
Colour Matching on Textiles. Manual for dyers, calico-printers, and textile colour chemists. London, 1901. 8vo. Ill. With dyed patterns.

PATTISON-MUIR, M. M.
Course of Practical Chemistry. Part II. Intermediate. London, 1899.

L, T.

twurf zur einheitlichen Werthbestimmung chemischer Desinfectionsmittel. Mit besonderer Berücksichtigung der neueren physikalisch-chemischen Theorien der Lösungen. Berlin, 1901. 8vo.

MANN, H.

ie Kaliindustrie in ihrer Bedeutung und Entwicklung. Stassfurt, 1898. 8vo.

NE, GEORGE F.

mmercial Fertilizers and Chemicals. Atlanta, 1897.

RMAIN, T. H., and C. G. MOOR.

he Analysis of Foods and Drugs. Part II. The Chemical and Biological Analysis of Water. London, 1899. 8vo.

RSON, H. C.

Caoutchouc brut et ses transformations en caoutchouc manufacturé. Traduit et adopté par G. Lamy-Torsilhon. Paris, 1902. 8vo.

HEUX, H.

éments de physique et de chimie à l'usage des candidats aux Ecoles nationales des Arts et Métiers. Paris, 1900. 12mo. Ill.

HMANN, H. VON.

leitung zur quantitativen chemischen Analyse nach A. Zimmermann. Neunte Auflage. München, 1898. 8vo. Ill.

Zehnte Auflage. München, 1901. 8vo. Ill.

feln zur qualitativen chemischen Analyse zum Gebrauche im chemischen Laboratorium des Staates zu München. Achte Auflage, revidirt von O. Piloty. München, 1900. 8vo.

Neunte Auflage. München, 1901. 8vo.

BON, H.

cherches sur la dissociation de l'acide sélénhydrique. Bordeaux, 1898. 8vo.

LET, H.

uveau procédé simple, rapide et peu couteux de dosage direct du sucre contenu dans la betterave, la canne, la bagasse, le sorgho, etc. Paris, 1890. 8vo.

PEPPER, ELWOOD S.

Beet Sugar Analysis, Complete System of Instruction for Analyses in Beet Sugar Factories. Chino, California, 1897. 8vo.

PERANDO, G.

Manuale di tossicologia ad uso dei medici e farmacisti. Roma, 1901. 8vo.

PERKIN, F. MOLLWO.

Qualitative Chemical Analysis, organic and inorganic. London 1901. 8vo. Ill.

PERKIN, W. H., and BEVAN LEAN.

Introduction to the Study of Chemistry. London, 1898. 8vo.

Introduction to the Study of Chemistry and Physics. London, 1901. 2 vols. 8vo.

PERKIN, W. H., and F. STANLEY KIPPING.

Organic Chemistry. London, 1899. 2 vols. 8vo.

Appendix. London, 1899. 8vo.

New edition, London and Edinburgh, 1902. 8vo.

PERL, E.

Die Beleuchtungstoffe und deren Fabrikation. Zweite sehr vermehrte Auflage. Wien, 1900.

PERRET, AUGUSTE.

Les corps gras industriels. Les corps gras, les savons, les chandelles et les bougies, la glycérine, etc. Paris, 1901. 12mo. Ill.

Couleurs minérales. Paris, 1902. 16mo.
Pétite encyclopédie pratique de chimie industrielle, No. 24.

Les explosifs. Paris, 1902. 16mo.
Pétite encyclopédie pratique de chimie industrielle, No. 25.

La parfumerie. Paris, 1901. 12mo. Ill.

Teintures et impressions. Paris, 1902. 16mo.
Pétite encyclopédie pratique de chimie industrielle, No. 23.

Vernis, mastics et enduits. Paris, 1902. 16mo.
Pétite encyclopédie pratique de chimie industrielle, No. 22.

PERSOZ, J.

Essais de matières textiles. Paris, 1899. 8vo. Ill.

PESCI, L.
Compendio delle lezioni di chimica farmaceutica inorganica, dettate nell' anno 1898–99 nella R. Università di Parma e redatte da E. Mazzoli. Parma, 1900.

PETER, C.
Das Tentamen physicum: organische und anorganische Chemie. Berlin, 1900. 8vo.

PETERS, F.
Die angewandte Elektrochemie. Wien, 1897–'98. 3 vols. 8vo.
Fortschritte der angewandten Elektrochemie und der Acetylen-Industrie im Jahre 1898. Stuttgart, 1899. 8vo.

PETERS, FREDUS N.
Modern Chemistry with its practical applications. New York, 1901.

PETERSEN, J.
Elektrolyse af organiske Syrers Alkalisalte. II. Kjøbenhavn, 1899. 8vo. Ill.

PETITGOUT.
Fabrication de l'acide sulfurique. Paris, 1901. 16mo. Ill.

PEYRONE, M.
Lezioni sulla chimica agraria. Torino, 1900. 8vo.

PFEFFER, VAN'T HOFF, ARRHENIUS and RAOULT.
Memoirs on the modern Theory of Solution, translated by H. C. Jones. New York, 1899. 8vo.
Harper's Scientific Memoirs.

PFEIFFER, P.
Beitrag zur Chemie der Molekülverbindungen. Zürich, 1902. 8vo.

PHILIÂTRE, EVONYME.
De remediis, ou Trèsor des remèdes secrets, Livre physic, médical, alchimic et dispensatif de toutes substantiales liqueurs et appareil des vins de diverses saveurs, nécessaire à toutes gens, principalement à médecins, chirurgiens et apothicaires. Traduit par Arnoullet. Lyon, 1557.

PHILIP, ARNOLD.
The Electro-Plating and Electro-Refining of Metals. Being a new edition of A. Watts' Electro-Deposition. London, 1902. 8vo. Ill.

PHILLIPS, FRANCIS C., *Editor.*
Methods for the Analysis of Ores, Pig-Iron and Steel. In use at the Laboratories of Iron and Steel Works in the region about Pittsburg, Pa. Together with an appendix containing various special methods of analysis of ores and furnace products. Contributed by the chemists in charge. Second edition. Easton, Pa., 1901.

PHILLIPS, H. J.
Les combustibles solides, liquides et gazeux. Traduit sur la troisième édition anglaise par J. Rosset. Paris, 1902. 12mo. Ill.

PHILLIPS, JOSHUA.
Engineering Chem[illegible] [illegible]al Treatise for the use of Analytical Chem[illegible] Iron Masters, Iron Founders, Students, and [illegible] [illegible]ising methods of Analysis and Valuation of the princip[illegible] [illegible]rials used in Engineering works, with numerous A[illegible] [illegible]nples, and Suggestions. Third edition, revised and [illegible] London, 1902. 8vo.

PICK, S.
Die künstlichen Düngemittel. Darstellung der Fabrikation des Knochen-, Horn-, Blut-, Fleischmehls der Kalidünger, Superphosphate, Thomasschlacke u. s. w. Dritte verbesserte und vermehrte Auflage. Wien, 1898. 8vo. Ill.

PICTET, AMÉ.
Die Pflanzenalkaloide und ihre chemische Constitution. In deutscher Bearbeitung von R. Wolffenstein. Zweite verbesserte und vermehrte Auflage. Berlin, 1900. 8vo.

PICTET, R.
Zur mechanischer Theorie der Explosivstoffe. Weimar, 1902.

PIEQUET.
Livres et procédés de teinture. Paris, 1900. 16mo.

PIESSE, SEPTIMUS.
Chimie des parfums et fabrication des essences. Nouvelle édition. Paris, 1902. 18mo. Ill.

PIGNET et HUE.
Nouveau procédé rapide pour l'analyse chimique de l'eau. Paris, 1902. 18mo.

PILAT, F.

Untersuchungsmethoden zur Erkennung der im Handel vorkommenden Waaren. Chemisch-technologisches Hilfsbuch. Olmütz, 1898. 8vo. Ill.

PILTZ, E.

Kleine anorganische Chemie. Systematische Uebersicht des elementar-chemischen Unterrichtsstoffes zum Wiederholen. Wenigenjena, 1901. 8vo.

PIÑERUA Y ALVAREZ, E.

SANGUINO, V. C. Contestacion completa al programa de Química general de E. Piñerua y Alvarez. Madrid, 1900. 4to.

PINNER, A.

Repetitorium der anorganischen Chemie. Zehnte Auflage. Hannover, 1898. 8vo.

Repetitorium der organischen Chemie mit besonderer Rücksicht auf die Studirenden der Medicin und Pharmacie. Elfte völlig umgearbeitete Auflage. Hannover, 1901.

PLATNER, G.

Die Mechanik der Atome. Berlin, 1901.

PLATTNER, K. F.

Plattner's Manual of Qualitative and Quantitative Analysis with the Blowpipe. Translated by Henry B. Cornwall, assisted by John H. Caswell. Eighth edition, revised after the sixth German edition, by Friedrich Kolbeck. New York, 1902. 8vo. Ill.

POISONS INDUSTRIELS. Publication du ministère du commerce, office du travail. Paris, 1901. 8vo.

POITEVIN.

See Colson, R.

POLLACCI, EGIDIO.

Corso di chimica medico-farmaceutica e fisiologica. Seconda edizione corretta. Milano, 1901. 8vo.

Supplemento al Corso di chimica medico-farmaceutica, scritto ad uso degli studenti e degli esercenti la medicina e la farmacia, coll' aggiunta di diversi capitoli, di ricerche originali, di figure, di tavole illustrative, oltre a circa 250 medicamenti nuovi. Milano, 1898. 8vo.

POLSTORFF, KARL.

Leitfaden der qualitativen Analyse und der gerichtlich-chemischen Analyse. Leipzig, 1901. 8vo.

PONTI, M. DA.

Distillazione delle vinacce e delle frutte fermentate. Fabbricazione razionale del cognac, estrazione del cremore di tartaro e utilizzazione di tutti i residui della distillazione. Seconda edizione, interamente rifatta. Milano, 1900. 12mo. Ill.

POOLE, HERMAN.

The Calorific Power of Fuels, founded on Scheurer-Kestner's "Pouvoir calorifique des combustibles." With the addition of a very full collection of tables of heats of combustion of fuels, solid, liquid, and gaseous. To which also is appended the Report of the Committee on Boiler-tests of the American Society of Mechanical Engineers (December, 1897), Tables of Constants used. New York and London, 1898. pp. xv–255. 8vo. Ill.

Second edition: New York and London, 1900.

POPPLEWELL, W. C.

The Prevention of Smoke, combined with the economical combustion of fuel. London, 1902. 8vo. Ill.

PORCHER, CH.

Cours de chimie organique. Paris, 1901. 8vo.

POUGET, J.

Recherches sur les sulfo- et les sélénio-antimonites. Paris, 1899. 8vo. Ill.

Recherches sur les sulfo- et les sélénio-arséniates. Paris, 1899. 8vo. Ill.

POZZI-ESCOT, E.

Analyse chimique qualitative. Paris, 1899.

Encyclopédie scientifique des Aide-Mémoire.

Analyse des gaz. Paris, 1901. 8vo. Ill.

Analyse microchimique et spectroscopique. Paris, 1899. 8vo.

Les Diastases et leurs applications. Paris, 1901. 8vo.

Etat actuel de nos connaissances sur les oxydases et les réductases. Etablissement du groupe nouveau des réductases. Préface par de Rey-Pailhade. Paris, 1902. 12mo.

Traité d'analyse théorique et pratique des substances minérales par les méthodes volumétriques et colorimétriques. Paris, 1900. 16mo. Ill.

POZZOLI, E.
Acque potabili. Voghera, 1898. 8vo.

PRAKTISCHE (DER) CHEMIKER. Eine Anleitung für die Apparaten-Sammlung zum Studium der Experimental-Chemie, mit 228 Versuchen. Zweite Auflage. Leipzig, 1899. 8vo. Ill.

Dritte, verbesserte und vermehrte Auflage. Leipzig, 1902. 8vo. Ill.

PRESCOTT, ALBERT B., and EUGENE C. SULLIVAN.
First Book of Qualitative Chemistry for studies of water solution and mass action. Eleventh edition. New York, 1902. 8vo.

PRESCOTT, ALBERT B., and OTIS C. JOHNSON.
Qualitative Chemical Analysis, a guide in qualitative work, with data for analytical operations and laboratory methods in inorganic chemistry. Fifth revised and enlarged edition, entirely rewritten. New York, 1901. 8vo.

PREU, F.
Beiträge zur Kenntniss der Bornylamine. Leipzig, 1902. 8vo.

PRIME NOZIONI elementari di elettrochimica generale. Lezioni di chimica applicata ai prodotti minerari. Torino, 1899. 4to.

PRINSEN GEERLIGS, H. C.
On Cane Sugar and the Process of its Manufacture in Java. Altrincham, 1902.

PRIOR, E.
Vereinbarungen betreffs der Untersuchungen und Beurtheilung des Bieres, bearbeitet im Auftrage des geschäftsführenden Ausschusses der freien Vereinigung Bayrischer Vertreter der angewandten Chemie. Mit Vorwort von A. Hilger. München, 1898. 8vo.

PROCTER, H. R.
Leitfaden für gerbereichemische Untersuchungen. Deutsche Ausgabe bearbeitet von J. Paessler. Berlin, 1901. 8vo. Ill.

PROST, E.
Exercises de chimie analytique appliquée. Liége, 1899.

PRUDHOMME, M.

Rapports du Jury international de l'Exposition universelle de 1900. Classe 78 : Matériel et procédés du blanchiment, de la teinture, de l'impression et de l'apprêt des matières textiles à leurs divers états. Paris, 1901. 8vo.

Teinture et impression. Paris, 18—. 8vo.

PRUNIER, L.

Les médicaments chimiques. Tome II. Composés organiques. Paris, 1899. 8vo. Ill.

Vol. I was issued in 1896.

PUERTA Y ESCOLAR, R.

Las aguas potables de lrid, 1900. 8vo.

PURDY, CHARLES W.

Practical Urinalysis agnosis. A manual for the use of physicians, surgeons, dents. Fourth edition. Philadelphia, 1898. 12mo.

Sixth edition, thoroughly revised. Philadelphia, 1901. 12mo. Ill.

PUSCHL, K.

Ueber die specifische Wärme chemischer Verbindungen. Lenz, 1900.

QUILLET, L.

L'industrie des acides minéraux. Paris, 1902. 8vo. Ill.

QUIVY, L.

La galvanisation à froid, ou zingage électro-chimique. Paris, 1899. 8vo. Ill.

RABATÉ, ED.

L'industrie des résines. Paris, 1902. 8vo.

RABE, P.

Ueber isomere Benzylidenbisacetessigester. Jena, 1900.

RAGOSIN, V. J.

Die rationelle Destillation und Verarbeitung von Erdölen verschiedener Provenienz. Autorisirte Uebersetzung von S. Aisinmann. Leipzig, 1899. 8vo.

RAMSAY, W.

Modern Chemistry, theoretical and systematic. London, 1900. 12mo. Ill.

ULT, F. M.

yoscopie. Paris, 1901.

nométrie (Détermination des tensions de vapeur des dissolutions). Paris, 1900. 8vo. Ill.

OUS, P.

éments d'hygiène et de chimie industrielles. Paris, 1900. 8vo.

ELLO DA SILVA, L.

ementos de análisis química aplicada al estudio de los terrenos, aguas y abonas. Madrid, 1901. 8vo.

IPES FOR THE COLOR, PAINT, VARNISH, OIL, SOAP, AND DRYSALTERY TRADE. Compiled by an analytical chemist. London, 1902. 8vo.

LICH, K.

nleitung zur Löthrohranalyse. Leoben, 1900. 12mo. Ill.

WOOD, J. J.

ubricants, Oils, and Greases, treated theoretically. Practical information regarding their composition, uses, and manufacture. London, 1898. 8vo.

ie Mineralöle und ihre Nebenproducte. Nebst einer kurzen Geschichte der Schottischen Schieferölindustrie, einer Beschreibung der geologischen und geographischen Verbreitung der Schottischen Schiefer und der Regeneration der zur Raffination benützen Säure und Lauge. Aus dem Englischen übersetzt von L. Singer. Leipzig, 1898. 8vo. Ill.

D, W.

he History of Sugar and Sugar-yielding plants, with an epitome of every notable process of sugar extraction and manufacture. London, 1866.

ODT, H.

otions de chimie applicables aux usages de la vie. Trente sixième édition. Paris, 1897. 12mo. Ill.

MANN, M.

ärberei der Baumwolle und der anderen vegetabilischen Faserstoffe. Dritte Auflage, gänzlich umgearbeitet, vermehrt und fortgeführt bis 1897. Berlin, 1901. 8vo, with dyed specimens.

Reinganum, M.
Theorie und Ausstellung der Zustandsgleichung. Göttingen, 1899. 8vo. Ill.

Reissert, A.
Geschichte und Systematik der Indigo-Synthesen. Berlin, 1898. 8vo.

Remsen, Ira.
Anorganische Chemie, nach der zweite Auflage des Originalwerkes bearbeitet von K. Seubert. Tübingen, 1899. 8vo. Ill.
College Text-Book of Chemistry. With figures, tables, and diagrams. A book intended to fill a place between "An Introduction to the Study of Chemistry" and "Inorganic Chemistry." New York, 1901. 8vo. Ill.
An Introduction to the Study of Chemistry. Sixth edition, revised and enlarged. New York, 1901.

Renzone, Raffaele.
Elementi di Chimica animale. Napoli, 1898. 8vo. Ill.
Seconda edizione ampliata ed emendata. Napoli, 1902. 8vo. Ill.

Report of the principal Chemist, Government Laboratory, upon the work for the year ended March 31, 1902; with appendices. London, 1902. 8vo.

Revoy, P.
Notions de chimie générale. Paris, 1902. 12mo. Ill.

Rey, Jean.
Sur la recherche de la cause pour laquelle l'étain et le plomb augmentent de poids quand on les calcine. Réimpression de l'édition de 1630 publié par E. Grimaux. Paris, 1896.

Reychler, A.
Les théories physico-chimiques. Deuxième édition, revue et completée par des éléments de thermodynamique. Paris, 1901. 8vo. Ill.
Outlines of Physical Chemistry. Part I. Fundamental Theories; The Gaseous State; Specific Heat of Elements in the Solid State; The Constitution of the Molecule. Part II. The Gaseous State; The Liquid State. Translated from the French by John McCrae. London, 1899. 16mo. Ill.

RHEAD, E. L., and A. HUMBOLDT SEXTON.
Assaying and Metallurgical Analysis for the use of students, chemists, and assayers. London, New York, and Bombay. 1902. 8vo.

RIASSUNTO DI CHIMICA FARMACEUTICA E TOSSICOLOGICA, pubblicato per cura dell' Associazione farmaceutica universitaria. Torino, 1901.

RIBAN, J.
Traité d'analyse chimique quantitative par électrolyse. Paris, 1898. 8vo. Ill.

RICCI, E.
Introduzione allo studio dei silicati. Milano, 1898. 8vo.

RICERCHE eseguite nel laboratorio di chimica agraria della R. Scuola superiore d'agricoltura di Milano. Analisi eseguite per il pubblico dai 1 Luglio 1896 al 31 Dicembre 1897. Milano, 1898. 8vo.

RICHARDS, ELLEN H.
The Cost of Living as modified by Sanitary Science. New York and London, 1899. 12mo.
Food Materials and their Adulteration. New and corrected edition. Boston, 1898. 12mo.

RICHARDS, ELLEN H., and ALPHEUS G. WOODMAN.
Air, Water, and Food from a Sanitary Standpoint. New York and London, 1900. 8vo.

RICHARDS, ELLEN H., and MARIA S. ELLIOTT.
The Chemistry of Cooking and Cleaning. A manual for housekeepers. Second edition, revised and rewritten. Boston, 1897. 12mo.

RICHMOND, HENRY D.
Dairy Chemistry. A practical handbook for dairy chemists and others having control of dairies. London, 1899. 8vo. Ill.

RICHTER, VICTOR VON.
Chemie der Kohlenstoffverbindungen, oder organische Chemie. Achte Auflage neu bearbeitet von R. Anschütz. Unter Mitwirkung von G. Schroeter. Bonn, 1898–1899. 2 vols. 8vo. Ill.
Neunte Auflage, neu bearbeitet von R. Anschütz. Bonn, 1900–1901. 2 vols. 8vo. Ill.

RICHTER, VICTOR VON. [Cont'd.]

Organic chemistry, or chemistry of the carbon compounds. Edited by R. Anschütz. Authorized translation by Edgar F. Smith. Third American from the Eighth German edition. Philadelphia, 1899. 2 vols. 12mo. Ill.

Lehrbuch der anorganischen Chemie. Elfte Auflage, neu bearbeitet von H. Klinger. Bonn, 1901. Ill.

A Text-book of Inorganic Chemistry. Translated by Edgar F. Smith. Fifth American from tenth German edition. Philadelphia, 1900. 8vo. Ill.

RIDEAL, SAMUEL.

Disinfectio [illegible] her with an account of the chemica [illegible] tics and preservatives. Second [illegible]

Glue and [illegible] e Tes [illegible] 1900. roy. 8vo. Ill.

Potash Salts, their production a [illegible] pplication to agriculture, industry and horticult [illegible] 1902. 8vo.

Practical Organic C [illegible] detection and properties of some of the more in [illegible] c compounds. Second edition. London, 1898. 8vo.

Water and its Purification, a handbook for the use of local authorities, sanitary officers, and others interested in Water Supply. Second edition, revised and extended. London, 1902. 8vo.

RIEDER, E.

Atlante di clinica microscopia delle urine. Traduzione da V. Pensuti. Milano, 1899. 8vo. Ill.

RIGBY, EDWARD. (Bibl., p. 777.)

Observations on the Chemistry of Sugar. London, 1788. 8vo.

RIJN, J. J. L. VAN.

Die Glycoside. Chemische Monographie der Pflanzenglycoside nebst systematischer Darstellung der künstlichen Glycoside. Berlin, 1900. 8vo.

On the Composition of Dutch Butter. London, 1902.

RIJN, WILLEM VAN.

Handleiding bij het qualitatief scheikundig onderzoek ten gebruike op scheikundige en pharmaceutische laboratoria. Leiden, 1899.

RIJN, WILLIAM VAN. [Cont'd.]
Handleiding bij het qualitatief scheikundig onderzoek ten gebruike op hoogere burgerscholen. Leiden, 1899. 8vo.

Die Stereochemie des Stickstoffes. Zürich, 1898. 8vo. Ill.
Gekrönte Preisschrift.

RIPPEL, J.
Grundzüge der Chemie und Mineralogie. Wien, 1899. 8vo. Ill.

ROBERT, H. P. J. B.
Étude chimique et thérapeutique sur l'acide picrique. Montpellier, 1899. 8vo.

ROBERTS, P.
The Anthracite Coal Industry. Study of the economic conditions and relations of the co-operative forces in the development of the Anthracite Coal Industry of Pennsylvania. With introduction by W. G. Sumner. London, 1902. 8vo.

ROBERTS-AUSTEN, WILLIAM CHANDLER.
See Austen, William Chandler Roberts.

ROBINET and G. CANU.
Manuel pratique du fabricant d'alcools. Distilleries agricoles. Paris, 1902. 8vo.

ROCKWOOD, ELBERT W.
Introduction to Chemical Analysis for Students of Medicine, Pharmacy and Dentistry. Philadelphia, 1901. 8vo. Ill.

ROCQUES, X.
Analyse des alcools et des eaux-de-vie. Paris, 18—. 8vo.

Le cidre. Paris, 1899. 8vo. Ill.

Les eaux-de-vie et liqueurs. Paris, 1898. 8vo. Ill.

RODELLA, V.
La pratica del laboratorio. Osservazioni ed appunti alla via sistematica per la ricerca delle basi. Torino, 1901. 12mo.

RODRIGUEZ, T.
Elementos de química moderna. Tercera edicion revisada y aumentada. Friburgo, 1901. 8vo. Ill.

ROELANTS, M. M. E.
Leerboek der scheikunde voor middelbare scholen voor meisjes. Amsterdam, 1898. 8vo. Ill.

Röntgen, Stokes, and J. J. Thomson.
Röntgen rays. Edited by G. F. Barker. New York, 1899. 8vo.
Harper's Scientific Memoirs.

Rogovski, C. von.
Beiträge zur Frage der Conservirung und des relativen Werthes des Stalldüngerstickstoffes. Leipzig, 1899. 8vo. Ill.

Rohde, G.
Das Chromylchlorid und die Etardsche Reaktion. Stuttgart, 1901. 8vo.

Roozeboom, H. W. Bakhuis.
Die heterogenen Gleichgewic n Standpunkte der Phasenlehre. 1. Heft. Die Phase ysteme aus einer Komponente. Braunschweig, 1901. 8 l.

Roscoe, Sir Henry Enfie rthur Harden.
Inorganic Chemistry for Adv Students. London, 1899. 8vo. Ill.

Roscoe, Sir Henry Enfield, and C. Schorlemmer.
Treatise on Chemistry. Vol. II. The Metals. New edition, completely revised by Sir H. E. R., assisted by H. G. Colman and A. Harden. London and New York, 1898. 8vo. Ill.

Roscoe's Beknopt leerbock der scheikunde, door J. D. van der Plaats.

Eerste stuk, niet-metalen. Achtste druk. Utrecht, 1895. Negende druk. Utrecht, 1900.

Tweede stuk, metalen. Zevende geheel omgew. druk. Utrecht, 1893. Tiende druk. Utrecht, 1899.

Derde stuk. Organische chemie. Zesde druk. Utrecht, 1893.

Roscoe-Schorlemmer's ausführliches Lehrbuch der Chemie. Vol. VIII. Die Kohlenwasserstoffe und ihre Derivate oder Organische Chemie. Parts 6 and 7. Bearbeitet in Gemeinschaft mit Edvart Hjelt und Ossian Aschan. Braunschweig, 1901. 8vo.
This volume completes the work begun in 1882.

Roth, C.
Ueber Metalldestillation und über destillirte Metalle. Basel, 1902. 8vo. Ill.

ROTHSCHILD, H. DE.
Pasteurisation et stérilisation du lait. Paris, 1901. 12mo. Ill.

ROUSSEL, J.
Traité pratique d'analyse chimique et micrographique des vins. Paris, 1899. 8vo. Ill.

ROVESTI, G.
L'analisi moderna del latte. Abbiategrasso, 1902.

RUDOLFFI, J.
Die Brandlöschung von wissenschaftlichen Standpunkt aus betrachtet; eine chemisch-physikalische Studie. Leipzig, 1901. 8vo.

RUDOLPHI, M.
Allgemeine und physikalische Chemie. Leipzig, 1898. 12mo. Ill.
Zweite Auflage. Leipzig, 1901. 12mo.
Die Bedeutung der physikalischen Chemie für den Schulunterricht. Göttingen, 1900.

RUDORF, G.
Periodic Classification and Problems of Chemical Evolution. London, 1901. 8vo.

RÜDORFF, F.
Grundriss der Chemie. Zwölfte Auflage, völlig neu bearbeitet von R. Lupke. Berlin, 1902. pp. 532. 8vo. Ill.
The Anorganische Chemie, pages 14-446, is sold separately.

RÜMPLER, A.
Die Nichtzuckerstoffe der Rüben in ihren Beziehungen zur Zuckerfabrikation. Braunschweig, 1898. 8vo.

RUPE, H.
Die Chemie der natürlichen Farbstoffe. Braunschweig, 1900. 8vo.

RUPP, G.
Die Untersuchung von Nahrungsmitteln, Genussmitteln und Gebrauchsgegenständen. Praktisches Handbuch für Chemiker, Medicinalbeamte, Pharmaceuten, etc. Zweite neubearbeitete und verbesserte Auflage. Heidelberg, 1900. 8vo. Ill.

RUPPEL, W. O.
Die Proteine. Marburg, 1900. 8vo.

RUTTEN, G. M.
Onderzoek omtrent de samenstelling der Bismuthnitraten en de evenwichten in het stelsel Bismuthoxyde, Salpeterzuur en Water. Leiden, 1900. 8vo.

SACHS, F.
Notes sur le contrôle chimique des sucreries. Bruxelles, 1900. 8vo. Ill.

SACHSSE, R.
Chemie für Landwirthe. Ein Compendium in Fragen und Antworten. Bautzen, 1901. 8vo.

SADTLER, SAMUEL P.
Handbook of Industrial [illegible] hemistry adapted for the use of manufacturing chemis[illegible] l interested in the utilization of organic mater[illegible] rial arts. Third edition. Philadelphia, 1900.

SADTLER, SAMUEL P., [illegible] V[illegible] OBLENTZ.
A Textbook of Chemistry, in[illegible] l for the use of pharmaceutical and medical students. Being the third revised and enlarged edition of Sadtler and Trimble's Chemistry. 2 vols. Philadelphia, 1900.

SALAZAR Y QUINTANA.
Tratado de análysis química. Vol. I. Madrid, 1897. 4to. Ill. Vol. II. Madrid, 1899. 4to.

SALKOWSKI, E.
Practicum der physiologischen und pathologischen Chemie, nebst einer Anleitung zur anorganischen Analyse für Mediciner. Zweite vermehrte Auflage. Berlin, 1900. 8vo. Ill.

SAMMLUNG CHEMISCHER UND CHEMISCH-TECHNISCHER VORTRÄGE.
Herausgegeben von Felix B. Ahrens. Stuttgart, 1898–1902. 8vo.

Band II: Heft 10–11. AISINMAN, S. Die einheitlichen Prüfungsmethoden in der Mineralölindustrie.

Heft 12. JÜPTNER, HANNS VON. Die Bestimmung des Heizwertes von Brennmaterialen.

Band III: Heft 1–3. GOOSE, FRIEDRICH. Die Beziehungen der Benzolderivate zu den Verbindungen der Fettreihe.

Heft 4. DONATH, ED., und K. POLLAK. Neuerungen in der Chemie des Kohlenstoffes und seiner anorganischen Verbindungen.

AMMLUNG CHEMISCHER UND CHEMISCH-TECHNISCHER VORTRÄGE. [Cont'd.]

Heft 5. ROTH, WALTER. Justus von Liebig ; ein Gedenkblatt zu seinem 25 jährigen Todestag (18. April, 1898).

Heft 6. JENSCH, EDMUND. Das Cadmium, sein Vorkommen, seine Darstellung und Verwendung.

Heft 7–8. HERZ, W. Ueber die wichtigsten Beziehunge zwischen der chemischen Zusammensetzung von Verbindungen und ihrem physikalischen Verhalten.

Heft 9–10. EPHRAIM, JULIUS. Ueber den Neuheitsbegriff bei chemischen Erfindungen.

Heft 11–12. BODLÄNDER, G. Ueber langsame Verbrennung.

Band IV: Heft 1–3. DENNSTEDT, M. Die Entwickelung der organischen Elementaranalyse.

Heft 4. SCHMIDT (J.) Ueber die Pyrazolgruppe.

Heft 5. MILDE, E. Ueber Aluminium und seine Verwendung.

Heft 6. AHRENS, F. B. Das Acetylen in der Technik.

Heft 7–8. TRAUBE, J. Ueber den Raum der Atome.

Heft 9. SCHOLTZ, MAX. Der Einfluss der Raumerfüllung der Atomgruppen auf den Verlauf chemischer Reaktionen.

Heft. 10. HERZ, W. Ueber die Molekulargrösse der Körper im festen und flüssigen Aggregatzustande.

Heft 11–12. SCHMIDT, J. Ueber die Halogenalkylate un quaternären Ammoniumbasen.

Band V: Heft 1. VAN'T HOFF, J. H. Ueber die Theorie der Lösungen.

Heft 2. LADENBURG, A. Die Entwicklung der Chemie in den letzten zwanzig Jahren.

Heft 3–5. KRÖHNKE, O. Die Reinigung des Wassers für haüsliche und gewerbliche Zwecke.

Heft. 6. AISINMAN, S. Die destructive Destillation in der Erdölindustrie.

Heft 7–10. HARPF, A. Flüssiges Schwefeldioxyd.

Heft 11–12. KOLLER, T. Die Conservirung der Nahrungsmittel und die Conservirung in der Gährungstechnik.

Band VI. Heft 1. KEPPELER, G. Chemisches auf der Weltausstellung zu Paris in Jahre 1900.

Heft 2–4. DONATH, E., und B. M. MANGOSCHES. Das Wollfett, seine Gewinnung, Zusammensetzung, Untersuchung Eigenschaften und Werwerthung.

SAMMLUNG CHEMISCHER UND CHEMISCH-TECHNISCHER VORTRÄGE. [Cont'd.]

Heft 5–6. LOTTERMOSER, A. Ueber anorganische Colloide.

Heft 7–8. ROHDE, G. Das Chromylchlorid und die Etardsche Reaktion.

Heft 9–11. KOPPEL, J. VON. Die Chemie des Thoriums.

Heft 12. BRUNI, G. Ueber feste Lösungen.

Band VII: Heft 1. GIESEL, F. Ueber radioactive Substanzen und ihre Strahlen.

Heft 2–4. GRAUER, K. Die Preisbewegung von Chemikalien seit dem Jahre 1861.

Heft 5. SIEGRIST, J. Chemische Affinität und Energieprincip.

Heft 6. NIETZKI, R. Entwickelungsgeschichte der künstlichen organischen Farbstoffe.

Heft 7–8. HINRICHSEN, F. W. Ueber den gegenwärtigen Stand der Valenzlehre.

Heft 9–10. SCHMIDT, J. Ueber den Einfluss der Kernsubstitution auf die Reaktionsfähigkeit aromatischer Verbindungen.

Heft 11. MENNICKE, H. Zur Verwerthung speciel der Wiedergewinnung des Zinns von Weissblechabfällen.

Heft 12. AHRENS, F. B. Das Gärungsproblem. 1902.

Band VIII: Heft 1. HANTZSCH, A. Die Diazoverbindungen. 1902.

SAMMLUNG DER BESTIMMUNGEN ÜBER DIE PRÜFUNG DER NAHRUNGSMITTELCHEMIKER für das Deutsche Reich und die einzelnen Bundesstaaten. Berlin, 1898. 12mo.

SANFORD, P. GERALD.

Explosifs nitrés. Traité pratique concernant les propriétés, la fabrication et l'analyse des substances organiques explosibles nitrées, y compris les fulminantes, les poudres sans fumée et le celluloïd. Traduit, revu et augmenté par J. Daniel. Paris, 1898. 8vo.

SANGLÉ-FERRIÈRE et L. CUNIASSE.

Nouvelle méthode d'analyse des absinthes. Travail fait au laboratoire municipal de la Ville de Paris et présenté à l'Académie de médecine en Juillet 1902 par Riche. Paris, 1902. 16mo. Ill.

SANSONE, ANTONIN.

Les Progrès récents dans la teinture et l'impression des tissus et d'autres fibres. Paris, 1899. 8vo. Ill.

With specimens of dyed fabrics.

SANTINI, SAVERIO.
Lezioni di chimica inorganica, organica ed analitica, ad uso dei giovani degli istituti tecnici. Terza edizione riveduta e corretta. Torino, 1902. 8vo. Ill.

SAPORTA, A. DE.
Physique et chimie viticoles. Avec une préface de P. P. Dehérain. Paris, 1899. 8vo. Ill.

SARTORI, G.
Chimica e tecnologia del caseificio. Seconda edizione. Torino, 1902. Ill.

SAUREL, P.
Sur l'équilibres des systèmes chimiques. Tours, 1900. 8vo.

SAVINI, S.
Lezioni di chimica inorganica, organica ed analitica. Terza edizione, riveduta e corretta. Torino, 1901. 8vo. Ill.

SAVOIRE, C.
Étude sur les alcaloïdes d'origine microbienne. Paris, 1898. 8vo.

SCAVIA, M.
La costituzione moleculare della cinconina e chinina. Torino, 1898. 8vo.

SCHÄFER.
Lehrbuch der Milchwirthschaft. Sechste Auflage von H. Sieglin. Stuttgart, 1898. 8vo. Ill.

SCHEELE, CHARLES WILLIAM.
Chemical Essays. Translated from the Transactions of the Academy of Sciences at Stockholm. With additions. First published in English by J. Murray, 32 Fleet St., London, in 1786. With a Sketch of the Life of Karl Wilhelm Scheele, by John Geddes M'Intosh. London, 1901. 8vo.

SCHERF, C. F.
Kleinfärberei und ihre Nebenindustrien. Vierte Auflage von M. Haller. Leipzig, 1899. 8vo. Ill.

SCHERPENZEEL, L. VAN.
De werking van reëel saltpeterzuur op de drie tolylzuren en eenige hunner derivaten. Amsterdam, 1900. 8vo.

Schifferer, A.

Praktische Betriebscontrolle eines Mälzerei- und Bierbraureibetriebes. München, 1901. 8vo. Ill.

Schimpf Henry W.

A Te k of Volumetric Analysis, with special reference to the vol tric processes of the Pharmacopœia of the United States. Third edition. New York and London, 1898. 12mo. Ill.

Schleh, E.

Das Wasser und der Kesselstein. Mit einen Anhang über Kesselexplosio Zweite verbesserte und vermehrte e. 4to. Ill.

Schleicher, H.

L'acide carbonique veloppement et ses applications dans nos diverses industri aris, 1901. 8vo.

Schlossmann, A.

Ueber einige bede erschiede zwischen Kuh- und Frauenmilch in d physiologischer Beziehung. Leipzig, 1898.

Schmatolla, E.

Die Gaserzeuger und Gasfeuerungen. Hannover, 1901. 8vo. Ill.

Schmerber, H.

Recherches sur l'emploi des explosifs en présence du grisou dans les principaux pays miniers de l'Europe. Avec préface par E. Sarrau. Paris, 1900. 8vo.

Schmidt, E.

Anleitung zur qualitativen Analyse. Füufte Auflage. Halle, 1902.

Ausführliches Lehrbuch der pharmaceutischen Chemie. Vierte vermehrte Auflage. Braunschweig, 1898–1901. 2 vols. 8vo. Ill.

Schmidt, Julius.

Chemisches Praktikum. 1. Theil: Ausgewählte Kapitel aus der anorganischen Chemie. Breslau, 1901. 8vo.

Ueber den Einfluss der Kernsubstitution auf die Reactionsfähigkeit aromatischer Verbindungen. Stuttgart, 1902. 8vo.

Ueber die Erforschung der Constitution und die Versuche zur Synthese wichtiger Pflanzenalkaloide. Stuttgart, 1900. 8vo.

Ueber die praktische Bedeutung chemischer Arbeit. Stuttgart, 1900. 8vo.

SCHNABEL, CARL.

A Text-book of Metallurgy. Translated from the German by Henry Louis. New York, 1899. 2 vols. 8vo. Ill.

Traité théorique et pratique de métallurgie. Zinc, cadmium, mercure, bismuth, etc. Traduit de l'allemand par L. Gautier. Paris, 1898. 8vo. Ill.

SCHNEIDEMÜHL, G.

Die animalischen Nahrungsmittel ; ein Handbuch zu ihrer Untersuchung und Beurtheilung für Thierärzte, Aerzte, Sanitätsbeamte und Nahrungsmittel-Untersuchungsämter. Wien, 1900–1902. 5 parts. 8vo. Ill.

SCHNEIDER, M.

Leitfaden der organischen Chemie.

Theil I : Das Methan und seine Derivate. Zürich, 1898. 8vo.

Theil II : Die Ringverbindungen. Zürich, 1900. 8vo.

SCHOLTZ, MAX.

Der Einfluss der Raumerfüllung der Atomgruppen auf den Verlauf chemischer Reaktionen. Stuttgart, 1899. 8vo. Ill.

Sammlung chemischer und chemisch-technischer Vorträge.

SCHOLTZE, J.

Ueber Acetylenbeleuchtungsanlagen. Leipzig, 1901. 8vo. Ill.

SCHOOP, M. U.

Die industrielle Elektrolyse des Wassers und die Verwendungsgebiete von Wasserstoff und Sauerstoff. Stuttgart, 1901. 8vo. Ill.

SCHOOP, P.

Electrische Bleicherei. Stuttgart, 1900. 8vo. Ill.

SCHOORL, N.

Overzichten en Tabellen ten gebruike bij de chemische Analyse. Amsterdam, 1900.

SCHREIBER, R.

Grundzüge der Chemie mit besonderer Rücksicht auf Küche und Haus methodisch bearbeitet. Cassel, 1898. 8vo.

SCHROEDER, J. VON.
Gerberei-Chemie. Sammlung von Aufsätzen, veröffentlicht in der Deutschen Gerberei-Zeitung 1886–1895. Berlin, 1898. 8vo. Portrait.

SCHULTZ, F. N.
Practicum der physiologischen Chemie. Ein kurzes Repetitorium. Jena, 1900. 8vo. Ill.

SCHULTZ, G.
Die Chemie des Steinkohlentheers mit besonderer Berücksichtigung der künstlichen orga[illegible]bstoffe. Dritte Auflage. Braunschweig, 1900–1901. 2 vols.

SCHUTZENBERGER, PAUL.
Leçons de chimie générale professées au Collège de France. Paris, 1898. 8vo. Ill.

SCHUYTEN, M. C.
Beginselen der scheikunde. Antwerpen, 1899. 8vo.

SCHWANERT, HUGO.
Hilfsbuch zur Ausführung chemischer Arbeiten. Braunschweig, 1902. 8vo. Ill.

SCHWARTZ, VON.
Handbuch zur Erkennung, Beurtheilung und Verhütung der Feuer- und Explosionsgefahr chemisch-technischer Stoffe und Betriebsanlagen. Konstanz, 1901. 8vo.

SCHWARZ, A.
Brautechnische Reiseskizzen. Siebente Reihe. Mährisch-Ostrau, 1899. 8vo. Ill.

SCIENCE CHEMISTRY PAPERS, being the questions set at the intermediate science and preliminary scientific examination of the University of London from 1890 to 1898. London, 1898. 8vo.

SCIENCE CHEMISTRY PAPERS. Questions set at the intermediate Science Examinations of London University from 1869 to 1900. London, 1901. 8vo.

SÉBASTIAN, VICTOR.
Guide pratique du fabricant d'alcools et du distillateur-liquoriste. Paris, 1899. 8vo. Ill.

SEDNA, L.

Das Wachs und seine technische Verwendung. Darstellung der natürlichen animalischen und vegetabilischen Wachsarten, des Mineralwachses (Ceresin), ihrer Gewinnung, Reinigung, Verfälschung und Anwendung. Zweite Auflage. Wien, 1902. 8vo. Ill.

SEEL, E.

Gewinnung und Darstellung der wichtigsten Nahrungs- and Genussmittel. Lehr- und Nachschlagebuch für Chemiker, Apotheker, Aerzte und Juristen. Stuttgart, 1902. 8vo.

SELDIS, R.

Anleitung zur qualitativen chemischen Analyse nebst Vorübungen. Heidelberg, 1902. 8vo.

Wandtafeln der qualitativen chemischen Analyse. Heidelberg, 1903. Two tables. Folio.

Tafel I. Prüfung auf Basen ; Tafel II. Prüfung auf Säuren.

SELF-EXAMINATION FOR MEDICAL STUDENTS. Third edition, enlarged. Philadelphia, 1901.

SELLERS, J. F.

An Elementary Treatise on Qualitative Chemical Analysis. Boston, 1900.

SERRES, L.

Cours de chimie à l'usage des candidats aux écoles d'arts et métiers. Paris, 1901. 16mo. Ill.

SESTINI, F., e A. FUNARO.

Corso di chimica ad uso delle scuole secondarie. Quinta edizione. Livorno, 1898. 8vo. Ill.

SESTINI, F., D. MARTELLI, G. MARIANI, G. SPAMPANI, e Q. SESTINI.

Metodi e norme per le analisi chimiche delle materie di uso agrario. 2.ª edizione riveduta e ampliata per cura di Domenico Martelli. Milano, 1901. 8vo.

SESTINI, Q.

Elementi di analisi chimica qualitativa. Livorno, 1899. 8vo. Ill.

SEUBERT, K.

Atomgewichte der Elemente. Nach den Beschlüssen der Atomgewichts-Commission der Deutschen Chemischen Gesellschaft herausgegeben. Leipzig, 1898, Seubert, K. [Cont'd.]

Atomgewichte der Elemente. Nach den Beschlüssen der Atomgewichts-Commission der Deutschen Chemischen Gesellschaft. Leipzig, 1902. Two leaves. Folio.

Sexton, A. H.

Chemistry of the Materials of Engineering. A handbook for engineering students. With tables, diagrams, and illustrations. London, 1900. 12mo. Ill.

Elementary Inorganic Chemistry, theoretical and practical. With a course of chemica[illegible] a series of examples in chemical arithmetic. Sixth ed[illegible]sed. London, 1899. 12mo.

Seyffart, J.

Kesselhaus- und Kalkofenkontrolle. Genaue Anweisung zur Handhabung der Hempelschen Apparate bei Untersuchung der Rauchgase und der Kalkofengase, sowie zur Ausführung calorimetrischer Heizwerthbestimmungen, nebst einigen Kapiteln über Verbrennungswärme, theoretischen und praktischen Heizeffekt. Mit Vorwort von W. Hempel. Magdeburg, 1898. 8vo. Ill.

Shaw, Simeon.

The Chemistry of the Several Natural and Artificial Heterogeneous Compounds Used in Manufacturing Porcelain, Glass, and Pottery. Originally published in 1837. London, 1900. 8vo. Ill.

Shenstone, W. A.

The Elements of Inorganic Chemistry, for use in schools and colleges. London, 1900. 8vo.

Laboratory Companion for use with Shenstone's Inorganic Chemistry. London, 1901. 8vo.

The Methods of Glass Blowing and of working silica in the oxy-gas flame. For the use of chemical and physical students. Fourth edition, reissued with new chapter. London, 1902. 16mo.

Shuttleworth, A. K.

Eine neue Methode der Aschenbestimmung. Göttingen, 1899. 8vo.

Siats, A.

Anleitung zu einfachen Untersuchungen landwirthschaftlich wichtiger Stoffe. Vierte vermehrte und verbesserte Auflage. Hildesheim, 1902. 8vo.

SIDERSKY, D.

Aide-mémoire de sucrerie. Paris, 1898. 12mo.

Analyse des engrais. Recueil international des méthodes officielles en usage dans les principaux pays de l'Europe et de l'Amérique. Paris, 1901. 8vo. Ill.

Polarisation et saccharimétrie. Paris, 1895. 8vo. Ill.

Traité d'analyse des matières sucrées. Paris, 1890. 12mo.

SIEBERT, G.

Lehrbuch der Chemie und Mineralogie für höhere Lehranstalten. Braunschweig, 1901. 8vo.

SIEGRIST, J.

Chemische Affinität und Energieprincip. Stuttgart, 1902. 8vo.

SIEMON, P.

Der physikalisch-chemische Unterricht in der höheren Mädchenschule. Berlin, 1888. 4to.

SILBERMANN, H.

Fortschritte auf dem Gebiete der chemischen Technologie der Gespinstfasern 1885–1900. Dresden, 1902. 2 vols. 8vo. Ill.

SIMMANCE, JOHN F.

Calorimetry of Producer and Illuminating Gases. With special reference to future legislation. London, 1902.

SIMMERSBACH, O., and W. CARRICK ANDERSON.

The Chemistry of Coke; being the Grundlagen der Koks-Chemie of O. Simmersbach. Containing numerous tables and index. Translated and enlarged by W. Carrick Anderson. Glasgow, 1899. 16mo. Ill.

SIMON, W.

Manual of Chemistry. A guide to lectures and laboratory work for beginners in chemistry. A textbook specially adapted for students of medicine, pharmacy and dentistry. Sixth edition. Philadelphia, 1898. 8vo. Ill.

SKERRY, G. E.

Practical Papers in Chemistry (inorganic and organic) and Elementary Physics. London, 1899. 8vo.

Sloane, T. O'Conor.
Liquid Air and the liquefaction of gases. Theory, history, biography, practical applications, manufacture. New York, 1899. 12mo. Ill.
Contains portraits of Faraday, Cailletet, Pictet, Dewar and Tripler.

Smets, G.
L'azote en agriculture. Maaseyck, 1899. 8vo.

Smith, A.
Laboratory Outline of General Chemistry. Chicago, 1899. 8vo. Ill.

Smith, Alexander, and Edw Hall.
The Teaching of Chemistry and Physics in the Secondary School. London and New York, 1902. 8vo. Ill.

Smith, Edgar F.
Electro-chemical Analysis. Third edition, revised and enlarged. Philadelphia, 1902. 8vo. Ill.
Analyse électro-chimique, traduit sur la deuxième édition américaine par J. Rosset. Paris, 1900. 12mo. Ill.

Smith, Edgar F., and Harry F. Keller.
Experiments arranged for students in General Chemistry. Fourth edition, enlarged. Philadelphia, 1900. 8vo. Ill.

Smith, J. C.
Manufacture of Paint. London, 1901. 8vo. Ill.

Smits, A.
Korte handleiding bij de beöefening van de quantitatieve chemische analyse. Utrecht, 1897. 8vo.

Snijders, A. J. C.
De scheikunde in het dagelijksch leven. ——, 1898.

Snyder, Harry.
The Chemistry of Soils and Fertilizers. Easton, Pa., 1899. 16mo. Ill.

Snyder, Harry, Almah J. Frisby, and A. P. Bryant.
Losses in Boiling Vegetables, and the Composition and Digestibility of Potatoes and Eggs. Bulletin No. 43. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1897. 8vo.

DER, HARRY, and L. A. VOORHEES.

udies on Bread and Bread Making. Bulletin No. 67. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1899. 8vo.

VE, M.

imica vegetale e agraria ad uso degli studenti e degli agricoltori. Torino. 16mo.

ENSEN, S. P. L.

udier over Koboltdioxalater Kjøbenhavn, 1899. 8vo.

EL, ERNEST.

a distillation. Paris, 1895. 8vo. Ill.

istillation et rectification industrielles. Paris, 1899. 8vo. Ill.

a grande industrie chimique minérale. Paris, 1902. 8vo. Ill.

a rectification de l'alcool. Paris, 189–. 8vo. Ill.

HLET, J. H.

ie Kunst des Färbens und Beizens von Marmor, künstlichen Steinen, von Knochen, Horn und das Färben und Imitiren von Holzsorten. Wien, 1899. 8vo.

CKETER, H.

eber eine quantitative elektrolytische Trennungsmethode der Halogene Chlor, Brom, Iod. Göttingen, 1898. 8vo. Ill.

NCER, GUILFORD L.

andbook for Chemists of Beet Sugar Houses and Seed Culture Farms. By Guilford L. Spencer. New York, 1897. 12mo.

andbook for Sugar Manufacturers and their Chemists. Third edition. New York, 1900.

NNRATH, J.

ie Chemie in Industrie, Handwerk und Gewerbe. Dritte Auflage. Aachen, 1899. 8vo.

RBER, JOACHIM.

eitfaden für den Unterricht in der anorganischen Chemie. Zürich, 1899. 8vo.

eitfaden für den Unterricht in der anorganischen Chemie. II. Theil. Zürich, 1901. 8vo.

SPICA, PIETRO
Tavole di chimica analitica qualitativa. Terza edizione accresciuta. Torino, 1898. 8vo.

SPRINGER, N. E.
Der Alkaloidnachweis. Kritisch-experimentelle Beiträge zur analytischen und toxikologischen Chemie der Alkaloide. Breslau, 1902.

SPRINGUEL, A.
Dosage de l'alcool dans un vin. Tableau comparatif des degrés Cartier et centésimaux. Correspondance entre densité et degrés Gay-Lussac. Corr[illegible] entre densité et pèse-esprit de Baumé. Table [illegible]lcooliques. Indications de l'alcoolomètre [illegible]c. [illegible]leau comparatif des degrés de thermomètre Réaumur [illegible]enheit. Huy, 1900. 8vo.
Dosage d'un échantillon [illegible] Table de la correspondance entre le degré densimétrique, l[illegible]é Baumé, l'extrait par hectolitre et un centième. Dosage de l'extrait primitif d'une bière. Tableau comparatif des degrés de thermomètre Réaumur et Fahrenheit. Huy, 1900. 8vo.

SQUINABOL, S., e G. CRESCI.
Nozioni di chimica e descrizioni dei minerali più importanti. Seconda edizione. Livorno, 1899. 8vo.

STADT, JUSTUS VAN DE.
Beknopt leerboek der koolstofchemie. Zwolle, 1899. 8vo.

STÄDELER, KOLBE.
Leitfaden für die qualitative chemische Analyse. Neu bearbeitet von H. Abeljanz. Elfte Ausgabe. Zürich, 1899. 8vo.
Zwölfte vermehrte Auflage. Zürich, 1901. 8vo.

STAEDTLER, H.
Hygiene der Nahrungsmittel und der Verdauung. Belehrung über den Einfluss der Nahrungs-, Genuss- und Heilmittel auf die Verdauungsorgane nebst einer Tabelle über Nahrungsmittelwerthe. Leipzig, 1901. 8vo.

STAMMER, CARL.
Agenda des fabricants du sucre et des distillateurs. Paris, 1896.
Traité complet de la fabrication du sucre. Deuxième édition. Supplément 1–2. Paris, 1873–75.

STEENBERG.

Organisk Kemi. Forelaesninger for Bygningsingeniører. Kjøbenhavn, 1896. 4to.

STEIGER, E.

Einführung in das chemische Praktikum. Wien, 1898. 8vo. Ill.

STENGLEIN, M.

Handbuch der Presshefen-Fabrikation. Braunschweig, 1901. 3 vols.

STEVENSON, F. W.

Modern Appliances in Gas Manufacture. London, 1901. roy. 8vo.

STEWART, F. L.

Shall we Grow the Sugar that we Consume? Swathmore, Pa., 1898.

Sorghum and Its Products. An account of recent investigations concerning the value of Sorghum in Sugar Production, with a description of the method of making Sugar and Refined Syrup from the Plant. Philadelphia, 1867. 12mo,

STIFT, A.

Leitfaden für Zuckerfabriks-Chemiker. Wien, 1900. 8vo. Ill.

STILLMAN, THOMAS B.

Engineering Chemistry. A Manual of quantitative chemical analysis for the use of students, chemists, and engineers. Second edition. Easton, Pa., 1900. 8vo. Ill.

STIRLING, G.

Synopsis of B. P. Chemical Reactions, with Equations. Liverpool, 1900. 8vo.

STOCKMEIER, H.

Handbuch der Galvanostegie und Galvanoplastik. Halle, 1899. 8vo. Ill.

STOECKENIUS, O., und O. KRÜGER.

Einführung in die Chemie. Charlottenburg, 1898. 8vo.

STÖCKHARDT, A.

Schule der Chemie, oder erster Unterricht in der Chemie, versinnlicht durch einfache Experimente. Zwanzigste Auflage, bearbeitet von Lassar-Cohn. Braunschweig, 1900. 8vo. Ill.

STÖFFLER, E.

Kalksandsteine; Bausteine aus quarzigem Sand und Kalk. Die chemisch-technischen Herstellungsverfahren, unter besonderer Berücksichtigung der Anlage und des Betriebs von Kalksandziegeleien. Zürich, 1900. 8vo. Ill.

Pierre silico-calcaires. Pierres artificielles formées de sable silicieux et de chaux. Principes techniques et chimiques des divers procédés de fabrication. Paris, 1900. 8vo. Ill.

STOHMANN, F.

Die Milch- und Molkereiprodukte. Ein Handbuch für Milchtechniker und Nahrungsmitt[illegible]ker. Braunschweig, 1898. 8vo. Ill.

STOHMANN, RÜMPLER.

Manuale della fabbricazione dello zucchero. Traduzione Italiana con note ed appendici da Neppi. Torino, 1902. 8vo. Ill.

STONE, WINTHROP E.

Dietary Studies at Purdue University, Lafayette, Ind., in 1895. With comments by W. O. Atwater and Chas. D. Woods. Bulletin No. 32. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C. 1896. 8vo.

STOPPANI, A.

Acqua ed aria, ossia la purezza del mare e dell'atmosfera fin dai primordi del mondo animato; conferenze. Terza edizione a cura di A. Malladra. Milano, 1898. 8vo. Plates.

STRINDBERG, A.

Typer och prototyper inom mineralkemien. Festskrift till firande af Berzelii femtiårs-minne. Stockholm, 1898. 8vo.

STROPPA, C.

Tecnologia chimica del legno. Bologna, 1900. 8vo.

STRUNIZ, F.

Beiträge zur Enstehungsgeschichte der stöchiometrischen Forschung. Eine Kritik der inductiven Naturwissenschaft. Berlin, 1901, 8vo.

STUDI E RICERCHE istituite nel Laboratorio di chimica agraria della R. Università di Pisa. Pisa, 1899. 8vo.

Part XIV.

SÜVERN, C.
Die künstliche Seide. Ihre Herstellung, Eigenschaften und Verwendung. Berlin, 1900. 8vo. Ill., with samples.

SULLA COMPOSIZIONE e sulle sofisticazioni delle sostanze alimentari. Conferenze tenute nell' Istituto d'Igiene della Università di Roma. Roma, 1898. 8vo.

SUMULEANU, C.
Synthese des Isomethylmorphols; ein Beitrag zur Constitutionsfrage des Morphins und Codeins. Ueber die Ortho-Nitroderivate des Vanillins. Berlin, 1901.

SUNDVIK, E. E.
Handbok i den allmänna Titreranalysen. Skildt äfven med afseende fästadt på den titrermetriska bestämningen af präparater i finska Farmakopén. 2. upplaga. Helsingfors, 1899. 8vo.

SUPINO, RAFFAELE.
Chimica clinica: operazioni fisico-chimiche fondamentali; esame del sangue; esame della saliva; esame del contenuto gastrico; esame delle feci; esame dell' espettorato; esame dello sperma e delle secrezioni della vagina e dell'utero; esame del sudore; esame del latte; esame dell'orina; esame dei liquidi ottenuti mediante puntura; ricambio organico. Milano, 1901. 16mo.

SUTTON, FRANCIS.
A Systematic Handbook of Volumetric Analysis, or of the quantitative estimation of chemical substances by measure, applied to liquids, solids, and gases. Eighth edition, enlarged and improved. London, 1900. 8vo. Ill.

SWARTS, F.
Manipulations chimiques. Gand, 1897. 8vo.

TABELLEN ZUR EINFÜHRUNG IN DIE QUALITATIVE CHEMISCHE ANALYSE. Im Gebrauch im chemischen Laboratorium der Universität Basel. Basel, 1899. 4to.

TACCANI, A.
Fabbricazione dello zucchero di barbabietola. Milano, 1901. 8vo. Ill.

TAFFE, H.
Recherche de l'acide salicylique dans les aliments. Paris, 1902. 8vo.

Tailfer, L.

Practical Treatise on Bleaching of Linen and Cotton Yarn and Fabrics. Translated from the French by J. G. McIntosh. London, 1901. 8vo.

Talbot.

See Colson, R.

Talbot, Henry P.

An Introductory Course in Quantitative Chemical Analysis, with explanatory notes and stoichiometrical problems. Third edition, revised and enlarged. New York, 1898. 8vo.

Tappeiner, H.

Introduction to chemical Method of clinical Diagnosis. Translated from the fifth German edition by E. J. McWeeney. London, 1898. 12mo.

Tardif.

Les odeurs et les parfums. Paris, 1899. 8vo.

Taschenbuch für den Acetylen-Techniker für 1900. Bearbeitet von A. Ludwig. Berlin, 1899.

Tassinari, P.

Sunto di lezioni di chimica inorganica. Anno scolastico 1898–'99. Pisa, 1899. 8vo.

Taucher, K.

Handbuch der Galvanoplastik oder der elektrochemischen Metallüberziehung in allen ihren Anwendungsarten. 6. Auflage des Roseleur-Kaselowsky'schen Handbuches. Frankfurt a. M. 1900. 8vo. Ill.

Tayler, A. J. W.

Refrigerating and Ice-making Machinery. Third edition, with additions. London, 1902. 8vo. Ill.

Taylor, R. L.

The Student's Chemistry. With over 600 questions and problems. Third edition, revised and enlarged. London, 1901. 8vo. Ill.

Tellera, G.

Relazione sulle analisi chimiche eseguite nell' anno 1897 per incarico dell' Ufficio d'igiene del comune di Cremona. Cremona, 1899. 8vo.

TERGAST.

Ursache und Verhütung des Bleiangriffes durch das Wasser der städtischen Wasserleitung in Emden. Emden, 1899. 8vo.

TETMAJER, L.

Methoden und Resultate der Prüfung künstlicher und natürlicher Bausteine. Dritte Auflage. Zürich, 1900. 8vo. Ill.

Methoden und Resultate der Untersuchung des Aluminiums und seiner Abkömmlinge. Zürich, 1901. 8vo. Ill.

Resultate specieller Untersuchungen der hydraulischen Bindemittel. Zweite Auflage. Zürich, 1898. 8vo. Ill.

THAUSING, J. E.

Die Theorie und Praxis der Malzbereitung und Bierfabrikation. Fünfte Auflage. Leipzig, 1898. roy. 8vo. Ill.

THENIUS, GEORG.

Die technische Verwerthung des Steinkohlentheeres. Nebst Anhang; Darstellung des natürlichen Asphalttheeres und Asphaltmastix aus den Asphaltsteinen und bituminosen Schiefern sowie Verwerthung der Nebenprodukte. Zweite Ausgabe. Wien, 1898. 8vo. Ill.

THIERRY, M. DE.

Atlas de manipulations de chimie. Métalloïdes. Paris, 1901. Fol.

THOMAS, V.

Guide pratique de teinture moderne, suivi de l'art du teinturier dégraisseur. Paris, 1900. 8vo.

Les matières colorantes naturelles. Paris, 1901. 16mo.

Les phénomènes de dissolutions et leurs applications. Paris, 1900. 16mo.

Les plantes tinctoriales et leurs principes colorants. Paris, 1901. 16mo.

Encyclopédie scientifique des Aide-Mémoire.

THOMPSON, C. J. S.

The Chemist's Compendium for Pharmacists, Medical Practitioners, and Students. Second edition, revised and corrected. London, 1898. 12mo.

THOMPSON, G. F.

Acetylene Gas, its nature, properties, and uses; also calcium carbide, its composition, properties, and method of manufacture. Liverpool, 1898. 12mo.

THOMPSON, *Sir* HENRY.

Food and Feeding. With an Appendix. Ninth edition, enlarged and revised. London and New York, 1898. 8vo. Ill.

THOMS, G.

Zur Werthschätzung der Ackererden auf naturwissenschaftlich statistischer Grundlage. Riga, 1901. 8vo.

THOMS, H.

Die Arzneimittel der organischen Chemie. Für Aerzte, Apotheker, und Chemiker bearbeitet. Zweite Auflage. Berlin, 1898. 8vo.

Einführung in die praktische Nahrungsmittelchemie. Mit einem Anhang: Botanisch-mikroskopischer Theil bearbeitet von E. Gilg. Leipzig, 1899. 8vo. Ill.

THOMSON, J. H., and BOVERTON REDWOOD.

Handbook of Petroleum: for inspectors under the Petroleum Acts and for those engaged in Storage, Transport, Distribution, and Industrial Use of Petroleum and its Products, and Calcium Carbide. With Suggestions on the Construction and Use of Mineral Oil Lamps. London, 1901. 8vo. Ill.

THORNTON, A., and M. PEARSON.

Notes on Volumetric Analysis. London, 1898. 8vo.

THORPE, FRANK H.

Outlines of Industrial Chemistry. A text-book for students. New York, 1898. 8vo.

Second edition, revised. New York, 1899. 8vo.

THRELFALL, R.

On Laboratory Arts. London, 1898. 8vo. Ill.

THRESH, JOHN C.

A Simple Method of Water Analysis, especially designed for the use of Medical Officers of Health. Second edition, enlarged. London, 1898. 8vo.

Water and Water Supplies. Second revised edition. Philadelphia, 1900. 8vo.

RSTON, W. A.

aboratory Companion for Use with Thurston's Inorganic Chemistry. London, 1901.

MANN, H.

ie Untersuchungsmethoden der Milch und deren Producte, mit besonderer Berücksichtigung der Milch- und Butterkontrolle. Leipzig, 1898. 8vo. Ill.

DEN, WILLIAM A.

troduction to the Study of Chemical Philosophy. The Principles of Theoretical and Systematic Chemistry. Tenth edition, completely revised and re-arranged, with answers to problems. London, New York and Bombay, 1901. 8vo.

LMAN, S. E.

escriptive Chemistry. A Textbook for a short course. Second edition. New York and London, 1899. 8vo. Ill.

Third edition, revised. New York, 1901. 8vo. Ill.

DEN MODDERMAN, R. S.

orderingen der chemie in de laatste kwart eeuw. Openbare les, gehouden bij het neerleggen van het hoogleeraarsambt den 17. en Juni, 1893. Groningen, 1893.

ARO, A. O., O. FORTE, A. CABELLA, e L. NICOTERA.

nalisi chimica completa qualitativa e quantitativa dell' acqua minerale di Marigliano. Pozzo artesiano Montagna. Napoli, 1897. 8vo.

PPER, A.

s Studium der Chemie. Nebst Anhang anhaltend im Auszuge die Prüfungsordnungen für Chemiker auf Schweizer- und Oesterreichischen Hochschulen mit deutscher Unterrichtssprache. Wien, 1902. 8vo.

PKINS, D. A.

tton and Cotton Oil: Planting, Cultivating, Harvesting, and Preparation of Cotton for Market. Organization, Construction, and Operation of Cotton-seed Oil Mills. Cattle-feeding; production of Beef and Dairy Products. Cotton-seed Meal and Hulls as Stock Feed. Manufacture, Manipulation, and Uses of Fertilizers. Containing full information for the Investor, Student, and Practical Mechanic. Charlotte, 1901. 8vo. Ill.

TOPSØE, HALDOR.

Vejledning i den kvalitative uorganiske Analyse. Femte Udgave. Kjøbenhavn, 1901.

TORRE, G. DEL.

Raccolta di problemi di chimica. Roma, 1899. 8vo.

Trattato di chimica generale. Seconda edizione, riveduta e corretta. Roma, 1899. 8vo.

TORREY, JOSEPH, JR.

Elementary Studies in Chemistry. New York, 1899. 12mo. Ill.

TOWNSEND, CHAS. F.

Chemistry for Photographers. Illustrated with diagrams and tables. Second edition revised. London, 1899. 12mo. Ill.

Third edition, revised. London, 1902. 12mo. Ill.

TRAUBE, J.

Physico-Chemical Methods. Authorized translation by Willett L. Hardin. Philadelphia, 1899. 8vo. Ill.

Ueber den Raum der Atome. Stuttgart, 1899. 8vo. Ill.

Sammlung chemischer und chemisch-technischer Vorträge.

TRAUMÜLLER, F.

Leitfaden der Chemie und Mineralogie. Zweite verbesserte Auflage. Leipzig, 1898. 8vo. Ill.

TRAVERS, MORRIS, W.

The Experimental Study of Gases. An account of the experimental methods involved in the determination of the properties of gases, and of the more important researches connected with the subject. London and New York, 1901. 8vo.

TRAWZL, J.

Die Dynamite; ihre Eigenschaften und Gebrauchsweise. Berlin. 1876. 8vo.

TREADWELL, F. P.

Kurzes Lehrbuch der analytischen Chemie. Vol. I. Qualitative Analyse. Wien, 1899. 8vo. Ill.

Vol. II. Quantitative Analyse. Wien, 1901. 8vo. Ill.

Zweite Auflage. Wien, 1902. 2 vols. 8vo. Ill.

A Short Text-Book of Analytical Chemistry. Authorized translation from the second enlarged and revised German edition by William T. Hall. New York, 1903. 2 vols. 8vo.

TREADWELL, F. P., und V. MEYER.
Tabellen zur qualitativen Analyse. Vierte verbesserte und vermehrte Auflage, neu bearbeitet von F. P. Treadwell. Berlin, 1900. 8vo.

TRIAPKINE, W.
Rougeage du rouge Turc par la méthode âlcaline. Paris, 1898. 8vo. Ill.

TRILLAT, J. A.
L'industrie chimique en Allemagne, son organisation scientifique, commerciale et économique. Paris, 1900. 18mo.
Oxydation des alcools par l'action du contact. Paris, 1901. 8vo.

TROTMANN, S. R.
Elementary Inorganic Chemistry. Metals. London, 1900. 8vo.

TROVERT, J.
Recherches sur la diffusion. Paris, 1902.

TRUCHOT, P.
L'éclairage à incandescence par le gaz et les liquides gazéifiés. Paris, 1899. 8vo. Ill.
Les terres rares. Minéralogie, propriétés, analyse. Paris, 1898. 8vo.

TSCHIRCH, A.
Die Harze und die Harzbehälter. Historisch-kritisch und experimentelle in Gemeinschaft mit zahlreichen Mitarbeitern ausgeführte Untersuchungen. Berlin, 1900. 8vo.

TSCHIRNER, F.
Ueber die Oxydation aromatischer Basen, insbesondere über die Oxydation von Anilin. Ueber β-Phenylhydroxylamin. München, 1900.

TUCKER, J. H. (Bibl., p. 879.)
Manual of Sugar Analysis. Fifth edition. New York, 1900. 8vo.

TÜMPEL, R.
Anleitung zur organischen (Mineral-) Analyse. Gera, 1898.

TULLEKEN, J. E.
Indigo en zijn onderzoek. Leiden, 1900. 8vo.

TURNEAURE, F. E., and F. H. RUSSELL.
Public Water Supplies; requirements, resources, and the construction of works. New York, 1901. 8vo.

TYLER, E. A.
A Junior Chemistry. London, 1902. 8vo.

UEBERSICHT DER ZUR FESTSTELLUNG DER SICHERHEIT, Stabilität und Anwendungsarten der Chloratsprengstoff "Street" ausgeführten Versuche. Mit Nachtrag. Genf, 1899.

ULZER, F., and A. FRAENKEL.
Introduction to Chemical-Technical Analysis. Authorized translation, with Appendix by the translator, Hermann Fleck. Philadelphia, 1899. 8vo.

URBAIN, G.
Recherches sur la séparation des terres rares. Paris, 1899. 8vo.

VACIRCA, A.
I concimi chimici nella agricoltura Siciliana. Palermo, 1900. 8vo.

VALENTA, E.
Photographische Chemie und Chemikalienkunde mit Berücksichtigung der Bedürfnisse der graphischen Druckgewerbe. Halle, 1898. 8vo. Ill.

VALENTIN, W. G., and W. R. HODGKINSON.
A Course of Practical Chemistry, or Qualitative Chemical Analysis. Ninth edition. London, 1898. 8vo.

VALENTINI, NICOLA.
Manuale di chimica legale (tossicologia). Milano, 1902. 16mo. Ill.

VALEUR, A.
Contribution à l'étude thermochimique des quinones. Recherches sur la constitution des quinhydrones. Paris, 1900. 8vo.

VALYN.
Traité détaillé et pratique de distillation à l'usage des familles. Paris, 1902. 16mo.

VANINO, L., und E. SEITTER.
Der Formaldehyd. Seine Darstellung und Eigenschaften, seine Anwendung in der Technik und Medicin. Wien, 1901. 8vo. Ill.

VANINO, L., and E. SEITTER. [Cont'd.]
Die Patina, ihre natürliche und künstliche Bildung auf Kupfer und dessen Legirungen. Wien, 1902. 8vo.

VARLEY, T.
Progressive Course of Chemistry for junior Classes. London, 1900. 8vo.

VAUBEL, W.
Die physikalischen und chemischen Methoden der quantitativen Bestimmung organischer Verbindungen. Berlin, 1902. 2 vols. 8vo.

Stereochemische Forschungen. Band 1, Heft 1: Der Benzolkern. München, 1898. 8vo. Ill.

Band 1, Heft 2. München, 1899. 8vo. Ill.

VENABLE, F. P., and A. S. WHEELER.
A Course in Qualitative Chemical Analysis. New York, 1902. 8vo.

VENABLE, F. P., and JAS. LEWIS HOWE.
Inorganic Chemistry according to the Periodic Law. Easton, Pa., 1899. 8vo. Ill.

VENTUROLI, G.
Nozioni elementari di analisi chimica qualitativa. Bologna, 1902. 12mo. Ill.

Degli zuccheri e degli idrati di carbonio. Bologna, 1898. 8vo. [Also], Bologna, 1902.

VEREINBARUNGEN zur einheitlichen Untersuchung und Beurtheilung von Nahrungs- und Genussmitteln und Gebrauchsgegenständen für das Deutsche Reich. Ein Entwurf, festgestellt nach den Beschlüssen der auf Anregung des kais. Gesundheitsamtes einberufenen Commission Deutscher Nahrungsmittel-Chemiker. Berlin, 1902. gr. 8.

VIBRANS, O.
Die Beseitigung und Reinigung von Abfallwässern, unter besonderer Berücksichtigung derjenigen von Zuckerarten. Magdeburg, 1899. 8vo.

VIGLIETTO, F.
Norme pratiche di vinificazione. Terza edizione, con aggiunte. Udine, 1898. 12mo.

VIGNERON, CH.
Le distillateur pratique. Paris, 1899.

VILLIERS, A.
Tableaux d'analyse qualitative des sels par voie humide. Troisième édition, revue et corrigée. Paris, 1899. 8vo. Ill.

VILLIERS, A., et E. COLLIN.
Traité des altérations et falsifications des substances alimentaires. Paris, 1900.

VILLON, A. M.
Les corps gras; huiles, graisses végétales et animales, sulféines, etc. Deuxième édition. Paris, 1900. 16mo. Ill.
Practical Treatise on the Leather Industry. Translated from the French by Frank T. Addyman. London, 1901. 4to. Ill.

VINCENT, C.
Ammonia and its Compounds. Their manufacture and uses. Translated from the French by M. J. Sattler. London, 1901. roy. 8vo.

VOGEL, J. H.
Acetylenzentralen. Gemeinverständliche Darstellung des zeit. Standes der Beleuchtung ganzer Ortschaften mit Acetylen. Halle a. S., 1901. 8vo.
Das Acetylen. Wesen und Bedeutung desselben als Beleuchtungsmittel. Halle, 1900. 8vo. Ill.

VOGL, A. E.
Die wichtigsten vegetabilischen Nahrungs- und Genussmittel, mit besonderer Berücksichtigung der mikroscopischen Untersuchung auf ihre Echtheit, ihre Verunreinigungen und Verfälschungen. Wien, 1898. 8vo. Ill.

VOLCKMAR, E.
Kurzes Lehrbuch der Chemie zunächst für den Unterricht an höheren Lehranstalten. Zweite Auflage, Cassel, 1901. 8vo. Ill.

VOLHARD.
Anleitung zur qualitativen chemischen Analyse. Neunte Auflage, herausgegeben von H. von Pechmann. München, 1898. 8vo. Ill.
Zehnte Auflage revidirt von K. A. Hofmann et O. Pilotz. München, 1901. 8vo.

VOORHEES, EDWARD B.

Food and Nutrition Investigations in New Jersey in 1895 and 1896. Bulletin No. 35. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1896. 8vo.

VORTMANN, GEORG.

Uebungsaufgaben aus der quantitativen chemischen Analyse durch Maasanalyse. Unter Mitwirkung von A. Wagner. Wien, 1902. 8vo. Ill.

WAALS, J. D. VAN DER.

Die Continuität des gasförmigen und flüssigen Zustandes. Zweite Auflage. Leipzig, 1899–1900. 2 parts. 8vo. Ill.

WACHTER, V.

Das Wichtigste der organischen Chemie. München, 1900. 8vo.

WADDELL, JOHN.

Arithmetic of Chemistry, being a simple treatment of the subject of Chemical Calculations. An accurate, simple, and systematic treatment of the subject, arranged so as to make the text present a continuous line of argument. Useful tables are appended, the French Metric System, of Thermometric Scales, Atomic Weights. Equations in frequent use. Four-place Logarithms, etc. New York, 1899. 16mo.

A School Chemistry, intended for use in High Schools and in elementary classes in Colleges. New York and London, 1900. 8vo.

WADE, E. M. and M. L.

A Compendium of Gold Metallurgy (ores). Los Angeles, 1899. 16mo.

Compendium of Gold Metallurgy and Digest of United States and California Mining Laws, etc., including a comprehensive review of the Milling, Concentration. Cyanide, and other Processes; Methods of testing for Tellurium. Sulphur, Antimony, Acidity of Ores, Gold and Cyanide in Solution; Borates, Amalgamation Tests for Gold, etc. New edition, revised. Los Angeles, 1901. 16mo. Ill.

WADE, JOHN.

Introduction to the Study of Organic Chemistry. London, 1898. 8vo.

Waeber, R.

Lehrbuch für den Unterricht in der Chemie, mit Berücksichtigung der Mineralogie und chemischen Technologie. Zwölfte Auflage. Leipzig, 1899. 8vo. Ill.

Wagenmann, A.

Künstliches Gold. Entdeckung eines auf Grund neuerer wissenschaftlicher Anschauungen beruhenden Verfahrens zur Umwandlung der Stoffe. Stuttgart, 1901. 8vo. Ill.

Wagner, Julius.

Maassanalytische Studien. Habilitationsschrift. Leipzig, 1898. 8vo.

Wagner's Handbuch der chemischen Technologie.

See Fischer, F.

Wahl, Robert, and Max Henius.

American Handybook of the Brewing, Malting, and Auxiliary Trades. Chicago, 1901. 8vo. Ill.

Wait, Charles E.

Dietary Studies at the University of Tennessee in 1895. With comments by W. O. Atwater and Charles D. Woods. Bulletin No. 29. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1896. 8vo.

Nutrition Investigations at the University of Tennessee in 1896 and 1897. Bulletin No. 53. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1898. 8vo.

Walke, Willoughby.

Lectures on Explosives. A course of lectures prepared especially as a manual and guide in the laboratory of the U. S. Artillery School. Second edition, revised and enlarged. New York and London, 1897. 8vo.

Walker, James.

Elementary Inorganic Chemistry. London, 1892. 8vo. Ill.

Introduction to Physical Chemistry. London, 1899. 8vo.

Second edition. London, 1901. 8vo.

Wallach, O.

Tabellen zur chemischen Analyse zum Gebrauch im Laboratorium und bei Repetition. Dritte Auflage. Bonn, 1898. 8vo.

WALTER, F.

Ausgewählte Capitel aus dem Gebiete der chemischen Technologie nebst einer Abrisse aus der Eisen- und Metallhüttenkunde. Wien, 1898. 8vo. Ill.

WANKLYN, ALFRED J., and WILLIAM JOHN COOPER.

Sewage-Analysis: A Practical Treatise on the Examination of Sewage and Effluents from Sewage; including a chapter on Utilization and Purification. London, 1899. 12mo. Ill.

WANKLYN, J. A.

Arsenic. London, 1901. 8vo.

WARNECKE, H.

Der Chemiker. Ein Führer und Berather beim Studium der Chemie. Hannover, 1900. 8vo. Ill.

WATSON, W. F.

Elementary Experimental Chemistry, Inorganic. Completely illustrated with full-page engravings of all the apparatus and chemicals used in the experiments. For students in high schools and junior classes in colleges and private learners. New York, 1901. 12mo.

WATT, ALEXANDER.

Art of Soap-making. Practical handbook of manufacture of hard and soft soaps, toilet soaps, etc. Sixth edition, with appendix of modern Candle-making. London, 1901. 8vo.

The Electro-plating and Electro-refining of Metals. Revised and largely rewritten by Arnold Philip. London, 1902. 8vo. Ill.

See Philip, Arnold.

WEATHERLY, HENRY.

Treatise on the Art of Boiling Sugar, Crystallizing, etc. Third edition. Philadelphia, 1875. 8vo.

WEBER, CARL O.

Chemistry of India Rubber, including the outlines of a theory on vulcanization. London, 1903. 8vo. Ill.

WEDEKIND, E.

Die Grundlagen und Ansichten der Stereochemie. Leipzig, 1900. 8vo. Ill.

WEDEKIND, E. [Cont'd.]

Lehrbuch der organischen heterocyclischen Verbindungen. Lehr- und Nachschlagebuch für Studium und Praxis. Leipzig, 1901. 8vo.

Zur Stereochemie des fünfwerthigen Stickstoffes, mit besonderer Berücksichtigung des asymmetrischen Stickstoffes in der aromatischen Reihe. Leipzig, 1899. 8vo. Ill.

WEFERS BETTINK, H.

De methoden tot het opsporen van vergiften in de 19e eeuw. Rede, uitgesproken bij de herdenking van den stichtings-dag der Utrechtsche hoogeschool. Utrecht, 1900.

WEIGEL, G.

Ueber die Harzbalsame von Larix decidua und Abies pectinata. Bern, 1900. 8vo.

WEIGMANN, H.

Arbeiten der Versuchsstation für Molkereiwesen, Kiel. Leipzig, 1901.

WEINBERGER, F.

Die Veränderungen des Aggregatzustandes der Körper. Eine historische Skizze. Burghausen, 1898. 8vo. Ill.

WEINSTEIN, B.

Physik und Chemie. Gemeinfassliche Darstellung ihrer Erscheinungen und Lehren. Berlin, 1898. 8vo. Ill.

WEISS, E.

Ueber das Wesen der Wein-Reinhefe. Ihre vortheilhafte Verwendung in der Praxis, sowie Rathschläge zur Herstellung guter, gesunder Weine, Moste, Obst-, Rosinen- und Beerenweine, etc. Stuttgart, 1899. 8vo.

WELLS, HORACE L., *Editor.*

A Laboratory Guide in Qualitative Chemical Analysis. New York and London, 1898. 8vo. Ill.

Studies from the Chemical Laboratory of the Sheffield Scientific School. New York and London, 1901. 2 vols. 8vo.

WELLS, J. S. C.

A Short Course of Inorganic Qualitative Analysis, for Engineering Students. New York and London, 1898. 12mo. Ill.

WENDER, M.

Praktische Anleitung zur Fabrikation kohlensäurehaltiger Erfrischungs- und Luxus-Getränke. Bearbeitet unter Mitwirkung. Wien, 1898. 8vo. Ill.

WENGER, G.

Chemie und Technik im Fleischer-Gewerbe. Wien, 1898. 8vo. Ill.

WERTH, FRIEDRICH.

Galvanizzazione, pulitura e verniciatura dei metalli e galvanoplastica in generale. Manuale pratico per l'industriale e l'operaio. Milano, 1900. 16mo. Ill.

WESELSKY, P., und R. BENEDIKT.

Dreissig Uebungsaufgaben als erste Anleitung zur quantitativen Analyse. Dritte Auflage neubearbeitet von G. Vortmann. Wien, 1902. 8vo.

WEST, THOMAS D.

Metallurgy of Cast Iron; a complete exposition of the processes involved in its treatment, chemically and physically, from the blast furnace, through the foundry, to the testing machine. A practical compilation of Original Research. With tables, figures, and half-tone engravings. Fifth edition. Cleveland, 1902. 12mo.

WESTERMANN, T.

Undersögelser over Typer af danske Jorder. Udgivet af den Kongelige Landbo-Höjskole. Kjøbenhavn, 1902. 8vo.

WETZEL, C.

Die Herstellung grosser Glaskörper bis zu den neuesten Fortschritten. Wien, 1900. 8vo.

WICHELHAUS, H.

Vorlesungen über chemische Technologie. Berlin, 1902. 8vo. Ill.

Wirtschaftliche Bedeutung chemischer Arbeit. Zweite durch Nachträge ergänzte Ausgabe. Braunschweig, 1900. 8vo.

WIKI, B.

Contribution à l'étude pharmacodynamique des alcaloïdes du gelseminium sempervirens. Genève, 1900. 8vo.

WILBRAND, F.

Grundzüge der Chemie in chemischen Untersuchungen. Ausgabe B (für landwirthschaftliche Schulen). Zweite Auflage. Hildesheim, 1898. 8vo. Ill.

Fünfte Auflage. Hildesheim, 1900. 8vo. Ill.

Leitfaden für den methodischen Unterricht in der Chemie. Siebente Auflage. Hildesheim, 1899. 8vo. Ill.

Ueber Ziel und Methode des chemischen Unterrichts. Ein Beitrag zur Methodik. Zweite Auflage. Hildesheim, 1900. 8vo.

WILDE, M. J. DE.

Eenige beschouwingen en onderzoekingen over kaas als voedingsmiddel. Utrecht, 1897. 8vo.

WILEY, HARVEY W.

The Influence of Environment upon the Composition of the Sugar Beet. Washington, 1901. 8vo.

See in Section VII, Bulletins of the Division of Chemistry.

The Manufacture of Starch from Potatoes and Cassava. Washington, 1900. 8vo.

See in Section VII, Bulletins of the Division of Chemistry.

Manufacture of Table Sirups from Sugar Cane. Washington, 1902. 8vo.

See in Section VII, Bulletins of the Division of Chemistry.

The Sunflower Plant, its Cultivation, Composition and Uses. Washington, 1901. 8vo.

See in Section VII, Bulletins of the Division of Chemistry.

WILEY, HARVEY W. [and others].

Exhibit of the Bureau of Chemistry at the Pan-American Exposition, Buffalo, N. Y., 1901. Washington, 1901. 8vo.

See in Section VII, Bulletins of the Division of Chemistry.

Provisional Methods for the Analysis of Foods adopted by the Association of Official Agricultural Chemists, November 14-16, 1901. Washington, 1901. 8vo.

See in Section VII, Bulletins of the Division of Chemistry.

WILEY, HARVEY W., and W. D. BIGELOW.

Pure-Food Laws of European Countries affecting American Exports. Washington, 1901. 8vo.

See in Section VII, Bulletins of the Division of Chemistry.

WILEY, HARVEY W., and ERVIN E. EWELL.
The Fertilizing Value of Street Sweepings. Washington, 1898. 8vo.
See in Section VII, Bulletins of the Division of Chemistry.

WILLE, R.
Plastomenit. Berlin, 1898. 8vo. Ill.
Étude sur la plastoménite, nouvelle poudre pour canons et fusils. Traduction de G. Bodenhorst. Berlin, 1898. 8vo. Ill.

WILLIAMSON, ALEXANDER W.
Papers on Etherification and on the Constitution of Salts. Edinburgh, 1902.
Alembic Club Reprints No. 16.

WILLS, G. S. V.
Volumetric Analysis for medical, pharmaceutical, and analytical Professions, especially useful for Beginners. Second edition. London, 1901. 8vo.

WILSON, E. B.
Cyanide Processes. New York, 1902. 12mo.

WILTNER, F.
Die Seifenfabrikation. Fünfte vermehrte und verbesserte Auflage. Wien, 1899. 8vo. Ill.

WINCKLER, FERDINAND LUDWIG.
Lehrbuch der pharmaceutischen Chemie und Pharmacognosie. Darmstadt und Leipzig, 1834–'35. 2 vols. 8vo.

WINDISCH, W.
Das chemische Laboratorium des Brauers. Anleitung zur chemisch-technischen Betriebskontrolle. Vierte Auflage. Berlin, 1898. 8vo. Ill.
Fünfte, erweiterte Auflage. Berlin, 1902. 8vo. Ill.

WINKLER, CLEMENS.
Lehrbuch der technischen Gasanalyse. Kurzgefasste Anleitung zur Handhabung gasanalytischer Methoden von bewährter Brauchbarkeit. Dritte Auflage. Leipzig, 1901. 8vo.
Praktische Uebungen in der Maassanalyse. Anleitung zur Erlernung der Titrirmethode. Dritte Auflage. Leipzig, 1902. 8vo. Ill.

KLER, CLEMENS, and GEO. LUNGE.
ndbook of Technical Gas-Analysis. With figures and diagrams. Second English edition translated from the third greatly enlarged German edition, with some additions. London, 1902. 8vo. Ill.

WISCHIN A.
Die N ene (cyclische Polymethylene des Erdöls) und ihre Stellu u anderen hydrürten cyclischen Kohlenwasserstoffen. Braunschweig, 1901. 8vo.

WITT, OTTO N.
Die chemische In hen Reiches im Beginne des 20. Jahrhunderts. 25. Jubiläum der Begründung des Vereins zur Wahru teressen der Chemischen Industrie Deutschlands rlin, 1902. 4to.

Chemische Tec nstfasern, ihre Geschichte, Gewinnung, ve Veredlung. Part 3. Braunschweig, 1902.

Forms part of volume 5 of " dbuch der chemischen Technologie." Parts I and II were published in 1888–'91.

Die Lebensbedingungen der modernen chemischen Industrie. Rede. Berlin, 1898. 4to.

WOLF, C. G. L.
Laboratory Handbook of Urine Analysis and physiological Chemistry. London, 1901.

WOLFF, EMIL.
Anleitung zur chemischen Untersuchung landwirthschaftlich wichtiger Stoffe. Vierte Auflage vollständig neu bearbeitet von E. Haselhoff. Berlin, 1899. 8vo. Ill.

Practische bemestingsleer met eene handleiding over de algemeene voedingsstoffen der planten en de eigenschappen van den bouwgrond. Een algemeen verstaanbare leiddraad tot de kennis der landbouwscheikunde. Naar het Hoogduitsch bewerkt door F. J. van Pesch. Zwolle, 1896.

Les Engrais. Traduit d'après la dixième édition par A. Damseaux. Paris, 1898. 8vo.

FF, G.
pra i rapporti reciproci tra forma e funzione delle singole formazioni organiche: conferenza tradotta da A. Codivilla. Torino, ——. 8vo.

FF, L.
ssentials of Medical Chemistry, organic and inorganic. Fifth edition, thoroughly revised by S. E. Jeliffe. Philadelphia, 1899.

FRUM, A.
hemisches Praktikum. Theil 1. Analytische Uebungen. Leipzig, 1902.

LNY, L.
a décomposition des matières organiques et les formes d'humus dans leurs rapports avec l'agriculture. Traduit de l'Allemand par É. Henry. Paris, 1902. 8vo. Ill.

DS, CHARLES D.
eats, composition and cooking. Washington, D. C., 1896. U. S. Department of Agriculture, Office of Experiment Stations. Farmers' Bulletin, No. 34. 8vo.

DS, CHARLES D., and L. H. MERRILL.
Report of Investigations on the Digestibility and nutritive value of Bread. Bulletin No. 85. U. S. Department of Agriculture, Office of Experiment Stations. Washington, D. C., 1900. 8vo.

DWARD, C. J.
ithmetical Chemistry. New edition, rewritten, with additions in the form of laboratory hints and suggestions for experimental work as a basis for lessons. London, 1898. 12mo.

RINGER, B.
eber die Dampfspannungen einer Reihe von Benzolkörpern. Berlin, 1900. 8vo.

IGHT, A. C.
nalysis of Oils and allied substances. London, 1902. 8vo. Ill.

RTZ, A.
lements of Modern Chemistry. Sixth edition, revised and enlarged by W. H. Greene and H. F. Keller. Philadelphia, 1901. 8vo. Ill.

WYATT, G. H.
Chemical Experiments. London, 1898. 8vo.

YOUNG, A. V. E.
The Elementary Principles of Chemistry. New York, 1901.
Suggestions to Teachers, designed to accompany "The Elementary Principles of Chemistry." New York, 1901.

YVON, P.
Manuel clinique de l'analyse des urines. Sixième édition augmentée. Paris, 1901. 18mo. Ill.

ZACHAREWICZ, E.
Expériences sur les engrais appliqués à la culture de la vigne. Deuxième édition, revue et augmentée. Montpellier, 1900. 8vo.

ZAVALA, J. M.
Observaciones sobre las aguas minerales de Cestona. Madrid, 1899. 4to. Ill.

ZACCHI, L.
Dell' aria atmosferica e de' suoi multiformi inquinamenti. Belluno, 1898. 8vo.

ZECHUISEN, H.
Chemische diagnostiek aan het ziekbed. Haarlem, 1897–1900.
Part I: Chemische diagnostiek der urine aan het ziekbed. 1897.
Part II: Chemische diagnostiek van concrementen [etc.]. 1900.

ZEISEL, S.
Die Chemie in der Landwirthschaft. Wien, 1899. 8vo.

ZELTNER, A.
Beiträge zur Kenntniss der Beziehungen zwischen Constitution und Drehungsvermögen. Basel, 1902. Ill.

ZILLERUELO, A.
Memoria presentada a la municipalidad por el director del laboratorio quimico municipal, correspondiente al año 1897. Valparaiso, 1898. 8vo

ZUCKER, A.
Repetitorium der Photochemie. Mit Berücksichtigung der Röntgenphotographie für Aerzte, Apotheker und Drogisten. Wien, 1901. 8vo.

ZULKOWSKI, K.
Zur Erhärtungstheorie der hydraulischen Bindemittel. Berlin, 1901. 8vo.

ZUNE et E. BONJEAN.
Traité d'analyse chimique, micrographique et microbiologique des eaux potables. Deuxième édition, revue et augmentée. Paris, 1900. 8vo. Plates.

SECTION VI.

ALCHEMICAL LITERATURE OF THE NINETEENTH CENTURY.

ALCHYMIST (The). London, 1835. 6 nos. 8vo.

ALMQVIST, C. J. L.
Anekdoter såsom bidrag till Guldmakariets Historia. Manuscriptet författadt i St. Louis, Missouri, i Norra Amerika, men sedermera aflemnadt till Törnrosens Bok. Stockholm [1867]. 84 pp. 8vo.
The seventh chapter narrates the adventures of Don Guatimozin in Missouri and Mexico.

AQUINAS, THOMAS, SAINT.
See Thomas Aquinas.

ARPPE, A. E.
Anteckningar om Finska Alkemister. Finska Vetenskapssocieteten meddelade den 15 April, 1867. n. p., n. d. 110 pp. 8vo. [Helsingfors, 1870?]

BARLET, F. CH.
Essai de chimie synthétique. Édition de l'hyperchimie. Deuxième édition. Paris, 1897. 16mo. 43, [5] pp.

BARRETT, FRANCIS.
The Lives of the Alchemystical Philosophers, with a critical catalogue of books in occult chemistry. London, 1815. 386 pp. 8vo.
Cf. Waite, A. E.

BASILIUS VALENTINUS.
See Valentinus, Basilius.

BAUER, ALEXANDER.
Die Adelsdocumente oesterreichischer Alchemisten und die Abbildungen einiger Medaillen alchemistischen Ursprunges. Wien, 1893. 72 pp. 8vo. Plates.
Monographien des Museums für Geschichte der oesterr. Arbeit. Heft III.

ER, ALEXANDER. [Cont'd.]

hemie und Alchymie in Oesterreich bis zum Beginn des xix. Jahrhundert. Eine Skizze. Wien, 1883. iv, 85 pp. 8vo. Ill.

IN, EMILE AUGUSTE.

himie et alchimie. Lacroix et Seré; Le moyen âge et la renaissance. Paris, 1849. Vol. II. 4to.

THELOT, MARCELIN.

a chimie au moyen âge. Paris, 1893. 3 vols. 4to. Ill.

I. Doctrines et pratiques chimiques.
II. L'alchimie syriaque.
III. L'alchimie arabe.

Reviewed by H. C. Bolton in J. Am. Chem. Soc., vol. xviii, No. 5 (May, 1896).

es origines de l'alchimie. Paris, 1885. xx, 445 pp. 8vo.

Illustrated with facsimiles of MSS. and a portrait of Berthelot.

THELOT, MARCELIN, et CH.-EM. RUELLE.

ollection des anciens alchimistes grecs, publiée sous les auspices du Ministère de l'instruction publique. Paris, 1887–1888. 4to. Ill. Three parts: xxviii, 268; i, 459; i, 428 pp.

The fountain head of information on the earliest manuscripts of chemistry and alchemy.

TON, HENRY CARRINGTON.

atalogue of Works on Alchemy and Chemistry exhibited at the Grolier Club, 29 East Thirty-second street, New York, January 16th to January 26th, 1891. 32 pp. 18mo.

This contains 110 titles with annotations.

ontributions of Alchemy to Numismatics. Read before the New York Numismatic and Archæological Society December 5, 1889. Author's edition. New York, 1890. 44 pp. sm. 4to. Three plates.

he Follies of Science at the Court of Rudolph II. Milwaukee, 1903. 8vo. Ill.

he Literature of Alchemy. Pharm. Review, vol. 19. Nos. 4 and 5 (April–May, 1901). 11 pp. 8vo.

otes on the Early Literature of Chemistry. No. 1: Were the Alchemists acquainted with oxygen? Amer. Chemist, Vol. IV, p. 170 (1873). No. 5: Definitions of Chemistry and Alchemy. Amer. Chemist, Vol. V, p. 215 (1874).

BOLTON, HENRY CARRINGTON. [Cont'd.]

The Revival of Alchemy. Science, N. S., vol. VI, p 853 (December 10, 1897).

BRANDE, W. T.

A Sketch of the History of Alchemy. The Quarterly Journal, Vol. IX (July, 1820). pp. 225–239.

BROWN, SAMUEL.

Lectures on the Atomic Theory and Essays, Scientific and Literary. Edinburgh and London, 1858. 2 vols. 8vo. Vol. 1 : x, 357 pp.; vol. 2 : 384 pp.

Contains an essay on A [illegible] and the Alchemists.

CAMBRIEL, L. P. FRANÇOIS.

Cours de philosophie hermétique, ou d'alchimie, en dix-neuf leçons. Paris, 1843. 215 pp. 12mo.

This book was reviewed by M. E. Chevreul in the Journal des Savants, 1851, in four articles.

CAP, P. A.

L'alchimie au xiii siècle. Paris, 1861. 8vo.

CARINI, ISODORO.

Sulle scienze occulte nel medio evo e sopra un codice della famiglia Speciale. Discorso letto all'Accademia di scienze e lettere in Palermo. Palermo, 1872. 98, xxxii pp. 8vo.

CHAUCER, GEOFFROY.

The Chanouns Yemannes Tale. Edited by Walter W. Skeat. Second edition. Oxford, 1879.

The Clarendon Press Series.

CHEVREUL, MICHEL-EUGÈNE.

Examen critique au point de vue de l'histoire de la chimie d'un écrit alchimique intitulé Artefii Clavis majoris sapientiæ. Présenté à l'Académie des sciences le 2 avril 1867. [Paris, 1867.] 82 pp. 4to.

CHRISTMAS, HENRY.

The Cradle of the Twin Giants, Science and History. London, 1849. 2 vols. 8vo.

Book V in Vol. II contains an historical essay on alchemy.

CYLIANI.

Hermes devoilé, dédié à postérité. Paris, 1832. 64 pp. 8vo.

DEE, JOHN.
The Private Diary of Dr. John Dee and the Catalogue of his Library of Manuscripts, from the original manuscripts in the Ashmolean Museum at Oxford, and Trinity College Library, Cambridge. Edited by James Orchard Halliwell. London, 1842. viii, 102 pp. 4to.

DESORMES, E., and ADRIEN BASILE.
Dictionnaire d'occultisme. Sciences occultes. Sociétés secrètes. Première section. Paris, 1897. 18mo.

DEWAR, JAMES.
Selected Extracts from different authors on Alchemy in relation to modern Science. [From Proc. Roy. Inst., 1884.] London, 1884. 8vo.

DIBBITS, H. C.
De Steen der Wijzen. Toespraak bij de inwijding van het nieuwe Laboratorium voor anorganische scheikunde van de Universiteit te Utrecht. Utrecht, 1903. 8vo.

EATON, T. J.
History of Alchemy, a paper read before the Kansas City Academy of Science, September 25, 1877. Western Review of Science and Industry, October, 1877.

ENCAUSSE, G.
See Papus.

EMMENS, STEPHEN H.
See Toward Knowledge of Natural Things.

ENGLER, C.
Der Stein der Weisen. Festrede bei dem feierlichen Acte des Directorats-Wechsels an der Grossherzoglichen badischen technischen Hochschule zu Karlsruhe am 9. November, 1889. Karlsruhe, 1889. 26 pp. roy. 8vo.

ESCODECA DE BOISSE.
Les alchimistes du xix siècle. Epitre à Nicolas Flamel. Paris, 1860.

EYSSENHARDT, FRANZ.
Arzneikunst und Alchemie im siebzehnten Jahrhundert. Sammlung gemeinverständlicher wissenschaftlicher Vorträge. N. F. Vierte Serie, Heft 96. Hamburg, 1890.
Contains a sketch of Francesco Giuseppi Borri, 1625-1700.

Faulstich.

Der Stein der Weisen. Programm. Berlin, 1844. 12mo.

Figuier, Louis Guillaume.

L'alchimie et les alchimistes. Essai historique et critique sur la philosophie hermétique. Paris, 1855.

Troisième édition. Paris, 1860. 12mo. pp. iv–421.

Entertaining and popular; founded on Schmieder's Geschichte der Alchemie.

Figulus, Benedictus.

A Golden and Blessed Caske[illegible]ture's Marvels. Now first done into English from the Ge[illegible] original published at Strasburg in the year 1608. [By Art[illegible] Edward Waite.] London, 1893. xxxi, 361 pp.

Foord, G.

Lecture on Alchemy. Chem. News, Vol. 48, p. 93 (1883).

Genty, Achille [*Editor*].

La Fontaine des amoureux de science composée par Jehan de la Fontaine, de Valenciennes, en la Comté de Henault. Poème hermétique du xv^e siècle. Paris, 1861. 93 pp. 12mo.

Contains also "Ballade du secret des philosophes."

Gessmann, G. W.

Die Geheimsymbole der Chemie und Medicin des Mittelalters. Eine Zusammenstellung der von den Mystikern und Alchymisten gebrauchten geheimen Zeichenschrift, nebst einem kurzgefassten geheimwissenschaftlichen Lexikon. Graz, 1900.

One hundred and twenty lithographic plates. Seven indexes.

Gildemeister, J.

Alchymie. Zeitschrift der deutschen morgenländischen Gesellschaft. Leipzig, 1876. Vol. xxx, pp. 534–538.

Gladstone, J. H.

The Birth of Alchemy. The Argonaut, January, 1876.

A sketch of Chinese alchemical knowledge. *See* Martin, W. A. P.

Gold from Sea Water at a Profit. The Facts. Series one and two. The Electrolytic Marine Salts Company. Boston, n. d. [1898]. 8 pp. 12mo.

See Sketch of the Discovery. . . .

LESS, G. C. ADOLF VON.

cob Böhme und die Alchymisten. Ein Beitrag zur Verständniss J. Böhme's. Berlin, 1870. 8vo.

TMANN, JOSEPH.

lchemie und Arkanologie im Gegensatze zur Schulmedicin. Die Arkana, die Remedia divina der alten Alchemisten. Zürich, 1888. 32 pp. 8vo.

EN, MARC.

a vie et les œuvres de Maître Arnaud de Villeneuve. Paris, 1896. 4to. Ill.

Portrait.

MES TRISMEGISTUS. Einleitung in das höchste Wissen: von Kenntniss der Natur und des darin sich offenbarenden grossen Gottes . . . Verfertigt von Alethophilo, 1786. Stuttgart, 1855. 256 pp. 18mo.

METIC (THE) MUSEUM restored and enlarged. . . . Now first done into English from the Latin original, published at Frankfort in the year 1678. London, 1893. 2 vols. sm. 4to. Vol. 1: 357 pp. Vol. 2: 322 pp. Ill.

Translated and published by Arthur Edward Waite, *q. v.*

METISCHES JOURNAL, zur endlichen Beruhigung für Zweifler und Sucher von der hermetischen Gesellschaft. 1 No. Camburg, 1802.

Followed by:

ermes, eine Zeitschrift in zwanglosen Heften zur endlichen Beruhigung für Zweifler und Sucher herausgegeben von L. F. von Sternhagen in Karlsruhe. Karlsruhe (?), 1805.

CHCOCK, ETHAN ALLEN.

emarks upon Alchemy and the Alchemists, indicating a method of discovering the true nature of Hermetic Philosophy, and showing that the search after the Philosophers' Stone had not for its object the discovery of an agent for the transmutation of metals. Boston, 1857. xv, 304 pp. 8vo.

wedenborg, a Hermetic Philosopher. Being a sequel to Remarks on Alchemy and the Alchemists. Showing that Emmanuel Swedenborg was a hermetic philosopher . . . New York, 1858. 352 pp. 8vo.

HOEFER, FERDINAND.

Histoire de la chimie depuis les temps les plus reculés jusqu'à notre époque . . . Paris, 1842–1843. 2 vols. 8vo. Vol. I: x, 510 pp; vol. II, viii, 518 pp.

Deuxième édition revue et augmentée. Paris, 1866–1869. 2 vols. 8vo.

The alchemical portion is now supplanted by the works of Berthelot.

HOPKINS, ARTHUR JOHN.

Bronzing Methods in the Alchemistic Leyden Papyri. Chem. News, vol. 85, p. 49 (January [illegible]).

HYPERCHIMIE (L'). Revue mensuelle d'alchimie et d'hermétisme et de médecine spagyrique. Organe de la Société alchimique de France. Directeur: F. Jollivet-Castelot. Rédacteur-en-Chef Sédir. Douai et Paris, 1895–1901. 6 vols. 4to.

From April, 1900, with the sub-title: Rosa Alchemica, *q. v.*

IDÉE ALCHIMIQUE (L'). Publiée par la Société alchimique de France. Paris, 1900.

JACOB, P. L.

Curiosités des sciences occultes, alchimie, . . . etc. Paris, 1885. 391 pp. 8vo.

JACQUEMAR.

La pierre philosophale et le phlogistique. Paris, 1876. 8vo.

JANET, PIERRE.

Baco Verulamius alchemicis philosophis quid debuerit. Paris, 1889. 8vo.

JOLLIVET-CASTELOT, FRANÇOIS.

L'alchimia sommario storico; tradotto e ampliato da Pietro Bornia. Napoli, 1900. 98 pp. 16mo.

Biblioteca esoterica italiana.

Comment on devient alchimiste. Traité d'hermétisme et d'art spagyrique basé sur les clefs du Tarot. Paris, 1897. xxiii, 417 pp. 12mo. Portraits and ill.

L'hylozoisme. L'alchimie. Les chimistes unitaires. Avec introduction de P. Sédir. Paris, 1896. 76 pp. 16mo.

La vie et l'âme de la matière. Essai de physiologie chimique. Études de dynamochimie. Paris, 1894. 199 pp. 12mo.

ON, BEN.

he Alchemist, edited, with introduction, notes, and glossary, by Charles Montgomery Hathaway, Jr. A thesis presented to the Faculty of the Graduate School of Yale University in candidacy for the degree of Doctor of Philosophy. New York, 1903. 8vo.

H.

he Alchemists. The Mirror of Literature, Amusement, and Instruction. London, 1840. 304 pp. 8vo..

TNER, KARL WILHELM GOTTLOB.

hysikalisch-chemische Abhandlungen oder Beiträge zur Begründung einer wissenschaftlichen Chemie. Frankfurt und Heidelberg, 1806–1807. 2 vols.

LY, EDWARD.

he Alchemical Writings of E. K. Translated from the Hamburg edition of 1676 and edited with a biographical preface [by Arthur Edward Waite]. London, 1893. lxvii, 153 pp. 8vo.

SEWETTER, KARL

eschichte des Occultismus. Leipzig, 1895. 2 vols. 8vo.

Vol. II, pp. xxvii, 749. Die Geheimwissenschaften. Erstes Buch. Die Alchymie.

PROTH, J.

ur les connoissances chimiques des Chinois dans le viii^{e} siècle. St. Pétersburg Acad. Sci. Mémoires. Vol. II, 1810.

HNER, P.

ie Goldmacherkunst im Mittelalter und in der Gegenwart. Zeitschr. Naturforsch. Stuttgart, 1903. 8vo.

P, HERMANN.

ie Alchemie in älterer und neuerer Zeit. Ein Beitrag zur Culturgeschichte. Heidelberg, 1886. 2 vols. 8vo. Vol. I: xiv, 260 pp.; vol. II: vi, 425 pp.

eiträge zur Geschichte der Chemie. Braunschweig, 1869–1875. 4 parts. 8vo.

eschichte der Chemie. Braunschweig, 1843–1847. 4 vols. 8vo.

Portraits of Lavoisier, Berzelius, Davy, and Liebig.
Zeitalter der Alchemie, vol. I, pp. 40–83.
Specielle Geschichte der Alchemie, vol. II, pp. 141–262.

KOPP, HERMANN. [Cont'd.]

Remarques concernant "Les Origines de l'Alchimie" de M. Berthelot et les "Beiträge zur Geschichte der Chemie" de H. Kopp. Paris et Heidelberg, 1886. xvi, 32 pp.. 8vo.

Über den Verfall der Alchemie und die hermetische Gesellschaft. Giessen, 1847. i, 34 pp. 8vo.

LACROIX, PAUL.

Chemistry and Alchemy [in the Middle Ages]. Science and Literature in the Middle Ages and at the period of the Renaissance. New York, 1878. pp. 174–199. sm. 4to. Ill.

LATZ, GOTTLIEB.

Die Alchemie, das ist die Lehre von den grossen Geheim-Mitteln der Alchemisten und den Speculationen welche man an sie knüpfte. Bonn, 1869. vi, 570 pp. 4to. Privately printed.

Mystical, cabalistic, occult, inscrutable, whimsical, and valueless.

LEEMANS, C.

Papyri græci Musei antiquarii publici Lugduni-Batavorum. Tomus II. Lugduni-Batavorum, 1885. viii, 310 pp. 4to.

LERMINA, JULES [*Editor*].

Collection d'ouvrages relatifs aux sciences hermétiques sous la direction de J. L. L'or et la transmutation des métaux par G. Théodore Tiffereau. Mémoires et conférences précédes de Paracelse et l'alchimie au xvi siècle par M. Franck. Paris, 1889. x, 184 pp. 12mo.

See Tiffereau, G. T.

LEWINSTEIN, GUSTAV.

Die Alchemie und die Alchemisten. Berlin, 1870. 36 pp. 8vo.

Sammlung gemeinverständlicher wissenschaftlicher Vorträge. V. Serie, Heft 113.

LUCAS, LOUIS.

Le roman alchimique, ou les Deux baisers. Paris, 1857. 12mo.

La chimie nouvelle. . . . Paris, 1854. 18mo. Ill.

LUTZ ZU LAUFELFINGEN, MARKUS.

Chemische Analyse und Synthese des M. L. zu L., ein alchymistischer Versuch von einem Mystiker des 19ten Jahrhunderts. Luzern, 1816. 151 pp. 16mo.

LUZI, W.

Das Ende des Zeitalters der Alchemie, und der Beginn der iatrochemischen Periode. Berlin, 1892. 33 pp. 8vo.

Sammlung populärer Schriften herausgegeben von der Gesellschaft Urania zu Berlin. No. 13.

LYDGATE, JOHN, and BENEDICT BURGH.

Lydgate and Burgh's Secrees of old Philisoffres. A version of the Secreta Secretorum, edited by Robert Steele. London, 1894. 8vo.

Early English Text Society. Ex. Ser. 66.

MACKAY, CHARLES.

Memoirs of Extraordinary Popular Delusions and the Madness of Crowds. London, 1841. 3 vols. 8vo.

Vol. I. The Alchymists.

MALFATTI, H.

Die Alchemie und ihre Stellung zur Chemie. Wien, 1896. 8vo.

MARCHAND, R. F.

Ueber die Alchemie. Ein Vortrag im wissenschaftlichen Vereine zu Berlin am 20. Februar, 1847. Halle, 1847. 45 pp. 12mo.

MARTIN, W. A. P.

The Chinese, their Education, Philosophy and Letters. New York, 1881. 319 pp. 8vo.

The chapter Alchemy in China (pp. 167–193) was first printed in the China Review, January, 1879.

MIKOWEC, FERDINAND B.

Die Alchemisten in Böhmen unter Rudolf II. Oesterreichische Blätter für Literatur und Kunst. Oktober, 1854. No. 42–44. sm. fol.

MONDE (LE) OCCULTE. Revue indépendante et internationale d'informations et de bibliographie concernant les faits psychiques et télépathiques, l'occultisme, la théosophie, le spiritisme, les religions et les philosophies anciennes, la magie et la sorcellerie, les traditions orientales et occidentales, le celtisme, l'hermétisme en général, l'alchimie, l'astrologie, la chiromancie, la graphologie, la physiognomie et la phrénologie, l'hypnotisme et la suggestion, le magnétisme, la médecine hermétique et spagyrique, la franc-maçonnerie et les sociétés secrètes, etc. Paris, 1893.

The department of alchemy is edited by Jollivet-Castelot.

MUIR, MATTHEW MONCRIEF PATTISON.

The Alchemical Essence and the Chemical Element; an episode in the quest of the unchanging. London, 1894. 94 pp. 8vo.

MUIR, MATTHEW MONCRIEF PATTISON. [Cont'd.]

The Story of Alchemy and the Beginnings of Chemistry. London and New York, 1903. 185 pp. 16mo.

MURR, CHRISTOPH GOTTLIEB, VON.

Literarische Nachrichten zu der Geschichte des sogenannten Goldmachens. Leipzig, 1805. vi, 154 pp. 12mo.

NEW PEARL (THE) OF GREAT PRICE. A treatise concerning the treasure and most precious stone of the philosophers. Or the method and procedure of this divine art; with observations drawn from the works of Arnoldus, Raymondus, Rhasis, Albertus, and Michael Scotu t published by James Lacinius, the Calabrian, with a copious ndex. The original Aldine edition, translated into En Arthur Edward Waite]. London, 1894. xi, 411 p

NICOLICH, EMANUELE.

La Pietra filosofale. Programma dell' I. R. Scuola Reale Superiore in Pirano pubblicato dalla Direzione alla fine dell' anno 1878–1879. Trieste, 1879. 47 pp. roy. 8vo.

OLLIFFE, CHARLES.

Les alchimistes d'autrefois. Paris, 1842. xvi, 291 pp. 32mo.

The text measures 65 x 38 mm.

PAPUS [a pseudonym of G. Encausse].

La pierre philosophale, preuves irréfutables de son existence. Paris, 1889. 29 pp., 1 plate. 16mo.

The author is president of the Supreme Council of the Martinists and has published sixteen essays on hermetism and magic.

Traité élémentaire de science occulte, mettant chacun à même de comprendre et d'expliquer les théories et les symboles employés par les anciens, par les alchimistes, les astrologues, les E.·. de la V.·., les kabbalistes. Paris, 1887.

PARACELSUS.

The Hermetic and Alchemical Writings of Aureolus Philippus Theophrastus Bombast, of Hohenheim, called Paracelsus the Great, now for the first time faithfully translated into English by Arthur Edward Waite. Edited with a biographical preface, elucidatory notes, a copious hermetic vocabulary, and index. London, 1894. 2 vols., sm. folio. Vol. I: xvi, 394 pp.; Vol. II: viii, 396 pp.

PARACELSUS. [Cont'd.]

ABERLE, KARL. Grab-Denkmal, Schädel und Abbildungen des Theophrastus Paracelsus. Beiträge zur genaueren Kenntniss desselben. Mittheilungen der Gesellshaft für Salzburger Landeskunde xxvii. Vereinsjahr, 1887. Heft 1. Salzburg *n. d.* 74 pp. 8vo. Eight portraits.

Theophrastus Paracelsus und dessen Ueberreste in Salzburg. Salzburg, 1878. 8vo.

BARBAGLIA, G. A. Sulla vita e sulle opere di Paracelso. Milano, 1875.

BIBLIOGRAPHY of the Paracelsus Library of the late E. Schubert, M. D. Frankfurt-am-Main; also his selection of works on Alchemy. To be sold by William Wesley & Son, London. London, 1893. 46 pp. 8vo.

Contains 194 titles of works by Paracelsus, 548 titles of works about him, and 351 titles of works on alchemy.

DUREY, L. Étude sur l'œuvre de Paracelse, médecin hermétique, astrologue, alchimiste, et sur quelques médecins hermétistes (Arnauld de Villeneuve, J. Cardan, Cornelius Agrippa). Paris, 1900. 8vo.

FERGUSON, JOHN. Bibliographia Paracelsica, an examination of Dr. Friedrich Mook's "Theophrastus Paracelsus. , Eine kritische Studie." Privately printed. Glasgow, 1877, 1885. 2 parts. I: 40 pp; II: 54 pp. 8vo.

HARTMANN, FRANZ. The Life of P. T. B. von H., known by the name of Paracelsus, and the substance of his teachings concerning cosmology, anthropology, pneumatology, magic and sorcery, medicine, alchemy and astrology, philosophy and theosophy, extracted and translated from his rare and extensive works and from some unpublished manuscripts. London, 1887. xiii, 220 pp. 8vo.

Second edition. London, 1896. 8vo.

KAHLBAUM, G. W. A. Theophrastus Paracelsus.. Vortrag. Basel, 1894. 8vo.

LESSING, MICHAEL BENEDICT. Paracelsus, sein Leben und Denken. Drei Bücher. Berlin, 1839. xvi, 250 pp. 8vo. Portrait.

MOOK, FRIEDRICH. Theophrastus Paracelsus. Eine kritische Studie. Würzburg, 1876. [vi], 136 pp. 4to.

Contains a bibliography of 276 titles. *See under Paracelsus*, Ferguson, John; *also* Rohlfs, H., and Schubert, E.

PARACELSUS. [Cont'd.]

NETZHAMMER, R. Theophrastus Paracelsus. Das Wissenswertheste über dessen Leben, Lehre und Schriften. Nach seinen Schriften und den neuesten Paracelsus-Forschungen. Einsiedeln, 1901. 8vo. Ill.

RIXNER, THADDÄUS ANSELM und THADDÄUS SIBER. Leben und Lehrmeinungen berühmter Physiker. 1. Heft. Sulzbach, 1819. 168 pp. 8vo.

ROHLFS, HEINRICH. Mook's Theophrastus Paracelsus, eine kritische Studie. Deutsches Archiv für Geschichte der Medicin und medicinischen Geographie. 5. Jahrgang. Leipzig, 1882. p. 213 *et seq.*

Cf. Paracelsus: Schubert, Eduard, und Karl Sudhoff.

SCHLEGEL, E. Paracelsus-Studien. Dresden, 1898. 8vo.

SCHUBERT, EDUARD, und KARL SUDHOFF. Paracelsus-Forschungen. Erstes Heft. Inwiefern ist unser Wissen über Theophrastus von Hohenheim durch Friedrich Mook und seinen Kritiker Heinrich Rohlfs gefördert worden. Eine historisch-kritische Untersuchung. Frankfurt a. M., 1887. vi, 89 pp. 8vo.

SUDHOFF, KARL. Versuch einer Kritik der Echtheit der Paracelsischen Schriften. Theil I: Bibliographia Paracelsica. Besprechung der unter Theophrast von Hohenheim's Namen 1527-1893 erschienenen Druckschriften. Berlin, 1894. 8vo.

Theil II: Paracelsus Handschriften gesammelt und besprochen. Berlin, 1898-1899. 8vo.

THEOPHRASTUS PARACELSUS. Gewürdigt in der zu Feyer des Geburtsfestes seiner Majestät des Kaisers Alexander des Ersten den 12. December, 1820, gehaltenen Hauptversammlung der pharmaceutischen Gesellschaft zu St. Petersburg von dem Director derselben. Allg. nord. Ann. Chemie. Vol. VI: pp. 243-296. 1821.

Additional essays on the Life and Works of Paracelsus will be found in Bolton's Select Bibliography of Chemistry, vol. I, p. 230. Smithsonian Miscellaneous Collections, Washington, D. C., 1893. 8vo.

PETTIGREW, THOMAS JOSEPH.

On Superstitions connected with the History and Practice of Medicine and Surgery. London, 1844. viii, 167 pp. 8vo. Plates.

Contains a section on alchemy.

PICATOSTE, FELIPE.

La alquimia en nuestros dias. Museo universal. Vol. V, 1861. pp. 250 *et seq.*

PIETSCHMANN, RICHARD.

Hermes Trismegistos nach aegyptischen, griechischen und orientalischen Ueberlieferungen. Leipzig, 1875. 60 pp. 8vo.

PLYTOFF, G.

Les sciences occultes . . . alchimie, astrologie, etc. Paris, 1891. 320 pp. 12mo. Ill.

POISSON, ALBERT.

Cinq traités d'alchimie des plus grands philosophes, Paracelse, Albert le Grand, Roger Bacon, R. Sulle, Arnaud de Villeneuve. Traduits du Latin. Paris, 1890. viii, 134 pp. 12mo.

Collection d'ouvrages relatifs aux sciences hermétiques.
Bibliothèque Chacornac.

Histoire de l'alchimie du XIV. siècle. Nicolas Flamel, sa vie, ses fondations, ses œuvres. Paris, 1893. 12mo.

Initiation alchimique. Paris, [1899?]

Théories et symboles des alchimistes. Le grand œuvre. Suivi d'un essai sur la bibliographie alchimique du XIX^{e} siècle. Paris, 1891. xii, 184 pp. 12mo.

Collection d'ouvrages relatifs aux sciences hermétiques.
The bibliography enumerates works of 48 authors; dates are often lacking.

RAMÓN DE LUANCO, JOSÉ.

La alquímia en España. Escritos inéditos, noticias y apuntamientos que pueden servir para la historia de los adeptos españoles. Barcelona, 1889–1897. 2 vols. 237 and 289 pp. 16mo. Ill.

RAY, PRAPHULLA CHANDRA.

A History of Hindu Chemistry from the earliest times to the middle of the sixteenth century A. D. London and Oxford, 1902. Vol. I. 79, 176, 41 pp.

The Introduction contains much on Hindu alchemy.

RHAMM, A.

Die betrüglichen Goldmacher am Hofe des Herzogs Julius von Braunschweig. Nach den Processakten dargestellt. Wolfenbüttel, 1883. 128 pp. 8vo.

RIBEAUD, E.

Die Alchemie und die Alchemisten in der Schweiz (Luzern, Mittheil. Naturf. Ges.), 1898. 72 pp. 8vo.

[ROBSON, M., afterwards HUGHES.]
The Alchemist. By the author of "Ornaments Discovered." London, 1818. 12mo.

ROSA ALCHEMICA. L'hyperchimie. Revue mensuelle d'hermétisme scientifique. Alchimie, astrologie, magie, sciences psychiques, physiognomie, chirologie, graphologie, thérapeutique, mystique, théurgie, esthétique. Organe de la Société Alchimique de France. Directeur: F. Jollivet Castelot. Douai et Paris, 1902.
This is a continuation of L'Hyperchimie founded in 1895.

ROSA, GABRIELE.
L'alchimia dalla sua origine sino al secolo xiv, e "la Compostella," opere di Frate Bonaventura d'Iseo. Dissertazione. Brescia, 1846. 8vo.

ROSS, PERCY.
A Professor of Alchemy (Denis Zachaire). London, 1887. 8vo.

SASSE, ERNST.
Die ellipsoidischen Schraubenbahnen der Atome und die Auferstehung der Alchymie. Dingler's Polytechnisches Journal, vol. 216, p. 181, 1875.

SATURNUS, S. I.
Iatrochimie et Electro-Homœopathie. Etude comparative sur la médecine du moyen âge et celle des temps modernes. Traduit de l'allemand. Paris, 1897. 75 pp. 12mo.

SCHAEFER, HEINRICH WILHELM.
Die Alchemie. Ihr ägyptisch-griechischer Ursprung und ihre historische Entwickelung. Jahresbericht über das Schuljahr 1886–1887. Königliches Gymnasium und Realgymnasium zu Flensburg. Flensburg, 1887. 52 pp. 4to.

SCHAEFER, TH.
Ueber die Bedeutung der Alchemie. Wissenschaftliche Abhandlung zu dem Programm der Hauptschule zu Bremen. Bremen, 1885. 32 pp. 4to.

SCHEIBLE, J.
Bibliotheca magica, I. Catalog des antiquarischen Bücherlagers von J. S. in Stuttgart. Inhalt: Magie, Alchemie . . . Catalog No. 45. [Stuttgart], 1873. 97 pp. 8vo.
Contains 1,925 titles.

SCHEIBLE, J. [Cont'd.]

Bibliotheca magica, II. Catalog des antiquarischen Bücherlagers von J. S. in Stuttgart. Inhalt: Magie, Alchemie, . . . Catalog No. 47. [Stuttgart], 1874. 34 pp. 8vo.

Contains titles from Nos. 1,926 to Nos. 2,661.

Bibliotheca magica et pneumatica. Catalog des antiquarischen Bücherlagers von J. S. in Stuttgart. Inhalt: Handschriften und Werke über Magie, Astrologie, Alchemie, . . . [Stuttgart], 1868. No. 1. 120 pp. 8vo.

Contains 2,531 titles.

SCHMIEDER, KARL CHRISTOPH.

Geschichte der Alchemie. Halle, 1832. x, 613 pp. 8vo.

The author endeavors to establish by historic proofs the verity of transmutation. Erudite and credulous.

SCHOTTE, H. E.

L'alchimiste moderne, ou la nouvelle création du monde. Fantasmagorie. Paris, 1885. 12mo.

SCHULTZE, ERNST.

Das letzte Aufflackern der Alchemie in Deutschland vor 100 Jahren. (Die Hermetische Gesellschaft 1796–1819.) Ein Beitrag zur deutschen Kulturgeschichte. Leipzig, 1897. 44 pp. 8vo.

SCHWERTZER, SEBALT.

KELL, RICHARD. S. S. als Kursächsischer Faktor und Kaiserlicher Berghauptmann. Inaugural Dissertation. Leipzig, 1881. 80 pp. 8vo.

SKETCH (A) of the Discovery of a commercially profitable process for the extraction of gold and silver from sea-water. [Boston, 1897?] 14 pp. 12mo.

Published by the Electrolytic Marine Salts Company; see Gold from Sea-Water.

SPENCER, E.

L'alchimiste, chansonette, paroles d'E. Joullot. Avec accompagnement de piano. Paris, 1903.

STEELE, ROBERT.

Alchemy in England. The Antiquary, vol. XXIV, p. 99 (September, 1891).

STRINDBERG, AUGUSTE.

Introduction à une chimie unitaire. (Première esquisse.) Paris, 1895. 27 pp. 8vo.

author claims that the metals are composed of those inorganic and organic elements whose molecular weights equal the atomic weights of the metals: Si = C_2H_4 = 28; Au = Fe_2S = 197; and cites experimental proofs.

SVÁTEK, JOS PH

Culturhisto ische Bilder aus Böhmen. Wien, 1879. 311 pp. 8vo.

tains a chapter on alchemy in Bohemia.

THOMAS AQUINAS, SAINT.

Traité de la pierre philos duit du latin pour la première fois et pré . Paris, 1898. 16mo.

Biblio

THOMPSON, C. J. S.

The Mystery and Romance of my and Pharmacy. London, 1897. xv, 335 pp. 8

THURNEISSER ZUM THURN, LI D.

FRANZ, R. Ueber den Alche n L. T. zum T. Berlin, 1875. 4to.

TIFFEREAU, C. THÉODORE.

L'art de faire de l'or. Conférence faite au théatre de la Galerie Vivienne le 24 Mai 1892. Paris, 1892. 36 pp. 12 mo.

L'art de faire de l'or. La transmutation du fer, du cuivre, et de l'argent en or. Paris, 1896. 8vo.

Les métaux sont des corps composés. La production artificielle des métaux précieux est possible et un fait avéré. Suivi de Paracelse et l'alchimie au XVI^e siècle par M. Franck. Paris, 1855. xxii, 114 pp. 12mo.

Deuxième édition, 1856.

TONNI-BAZZA, LORENZO.

Dell'alchimia e degli alchimisti. Dissertazione. Pavia, 1858.

TOPELIUS, Z.

Times of Alchemy. Translated from the Original Swedish. Chicago, 1884. 331 pp. 12mo.

TOWARD KNOWLEDGE OF NATURAL THINGS. New York, 1897. 16 pp. long 12mo.

The cover bears the title: Arcana Naturæ. The pamphlet deals with Argentaurum and the Philosophers' Stone, translated from *La Nature*, June 5, 1897.

PIED.
ı vitriol philosophique et sa préparation. Paris, 1896. 56 [1] pp. 16mo.

BA (THE) PHILOSOPHORUM, or Assembly of the Sages, called also the Book of Truth in the Art and the third Pythagorical Synod. An ancient alchemical treatise translated from the Latin, the chief readings of the Shorter Codex, parallels from the Greek alchemists, and explanations of obscure terms, by Arthur Edward Waite. London, 1896. iv, 211 pp. 8vo.

ENTINUS, BASILIUS.
ıe Triumphal Chariot of Antimony. With the commentary of Theodore Kerckringius. Being the Latin version published at Amsterdam in the year 1685, translated into English, with a biographical preface [by Arthur Edward Waite]. London, 1893. xxxiii, 204 pp.

ILDEBRAND, H. Der Alchemist B. V. Einladungsschrift. Zerbst, 1876. 38 pp. 4to.

LET DE VIRIVILLE.
ɜs ouvrages alchimiques attribués à Nicolas Flamel. Mémoires de la Société impériale des Antiquaires de France. 26 pp. 8vo. [Paris.]

ZE, J. MARCUS DE [E. BOSQ].
ı transmutation des métaux. L'or alchimique, l'argentaurum. Divers procédés de fabrication avec lettres et documents à l'appui. Paris, 1902. 48 pp. 16mo.

ZEICHNISS EINER ALCHYMISTISCHEN BIBLIOTHEK an seltenen Manuscripten und Druckwerken aus älterer Zeit. Gotha, 1859. 16 pp. 8vo.

STO, E.
ɜs origines de l'alchimie par M. Berthelot. Analyse. Paris, 1886. 24 pp. 8vo.

PIUS, G.
eber die Alchemisten. Ein im historisch-philosophischen Verein in Heidelberg gehaltener Vortrag. Heidelberg, 1874. 8vo.

WAITE, ARTHUR EDWARD.

Collectanea Chemica, being certain select treatises on alchemy and hermetic medecine, by Eirenæus Philalethes, Francis Antony, George Starkey, Sir George Ripley and Anonymous unknown. Edited by A. E. Waite. London, 1893. 160 pp. 8vo.

See Hermetic (The) Museum; Kelly, Edward; New Pearl (The) of Great Price; Valentinus, Basilius; Figulus, Benedictus; Turba (The) Philosophorum; Paracelsus, The Hermetic and Alchemical Writings of.

Lives of Alchymistical Philosophers, based on materials collected in 1815 and supplemented by recent researches. . . . To which is added a Bibliograph hemy and Hermetic Philosophy. London, 1888. 315

Cf. Barrett, Franc

WEECH, VON.

Verfolgte Alchymisten. Z für die Geschichte des Oberrheins herausgegeben von dem ssherzoglichen General-Landes-archive zu Karlsruhe. xv. pp. 468–470. 1873.

Two original letters, d 5 and 1607, showing fate of Honauer and Seton.

WILD, JOHANN RUDOLPH.

Versuch einer Characteristik des Verhältnisses der Alchemie zur Magie, Astrologie und verwandten ähnlichen Wissenschaften, mit besonderer Berücksichtigung der alchemistischen Zeichen. Cassel, 1841. 68 pp. 8vo. Eight plates.

WRANÝ, ADALBERT.

Geschichte der Chemie und der auf chemischer Grundlage beruhenden Betriebe in Böhmen bis zur Mitte des 19. Jahrhunderts. Prag, 1902. vii, 397 pp. 8vo.

Chapter I, pp. 1–43, treats of the history of alchemy.

ZACHAR, OTAKAR.

Alchymista Bavor Rodovský Z Hustiřan a jeho řukopis nyni Leydensky. Knapsal O. Z. V Praze, 1902. 35 pp. 8vo.

Mistra Antonia z Florencie Cesta spravedlivá v alchymii. (L. 1457.) Z řukopisů Musea královstvi Českého vydal O. Z. V Praze, 1899. 106 pp. 18mo. Ill.

ZIMPEL, CHAS. F.

Bemerkungen über den Stein der Weisen (Lapis Philosophorum) als Universal-Heilmethode zur möglichen Verhütung des Todes. Württemberg, 1879. 24 pp. 8vo.

Contains a list of 48 works of the author.

SECTION VII.

PERIODICALS.

Titles are alphabeted under the first word, articles and "new" cepted, with cross-references from Editors.

EXPLANATION OF SIGNS.

+ Following a date signifies current at the date in question.
‖ Following a date signifies publication discontinued.

ETYLEN IN WISSENSCHAFT UND INDUSTRIE. Centralorgan für die Gesammtinteressen der Acetylen- und Carbidtechnik. Herausgegeben von M. Altschul und K. Scheel. 5 vols. 4to. Halle a. S., 1898–1902 +

ETYLEN-KALENDER.
See Kalender für Acetyleniker.

RENS, FELIX B.
See Chemische Zeitschrift.

BUM-ANNUAIRE DE L'ACÉTYLÈNE. Laboratoires, usines, appareils, emploi. Rédigé par P. Hubert. Paris, 1899.

LGEMEINER ANZEIGER DER THON-INDUSTRIE FÜR DAS KÖNIGREICH SACHSEN UND DIE THÜRINGISCHEN STAATEN. Fachblatt für Ziegel-, Chamotte-, Thonwaaren-, Kalk- und Cement-Industrie. 1897–Sept., 1801. Redacteur: B. Pfretzschner. 5 vols. 4to. Dresden, 1897–1901.

Continued as

Ton-Industrie. Oct., 1901–Sept., 1902. 1 vol. 4to. Dresden, 1902 +

TSCHUL, M., and K. SCHEEL.
See Acetylen in Wissenschaft und Industrie.
Also Jahrbuch für Acetylen und Carbid.

ERICAN ELECTROCHEMICAL SOCIETY. *See* Transactions.

Annali di farmacoterapia e chimica biologica, continuazione degli "Annali di chimica applicata alla medicina," della "Rivista di chimica medica e farmaceutica," degli "Annali di chimica e farmacologia." Direttori: D. Baldi, G. Bufalini, G. Coronadi. Milano, 1900.

Annuaire des brasseurs et des malteurs en 1899, avec notes pratiques et renseignements utiles, par G. Gras. Paris, 1899.

Annual Report of the Chemical Examiner and Bacteriologist to the Government of the Northwestern Provinces of India and Oudh and of th inces for the year 1894–1902. Allahabad, 1895–1

Association of Off l ural Chemists. Proceedings of the Conventions.

See in Section VII, he Division of Chemistry.

Baldi, D. G. Bufa

See

Beiträge zur chemischen Physiologie und Pathologie. Herausgegeben von F. Hofmeister. 2 vols. 8vo. Braunschweig, 1901–1902.

From Vol. II (1902), *with the subtitle:* Zeitschrift für die gesammte Biochemie.

Bericht über das chemisch-hygienische Untersuchungsamt der Stadt Stralsund (zugleich amtliche Nahrungsmittel-Untersuchungsstation für Kreis Grimmen) für die Zeit von 1. April 1894 bis 31. März 1899. Von A. Schlicht. Stralsund, 1900.

Bericht über den III. internationalen Congress für angewandte Chemie. Wien, 1898. Verfasst von dem Generalsecretär des Congresses F. Strohmer. 3 vols. 8vo. Wien, 1899.

Bericht über die 10. Hauptversammlung der Vereinigung öffentlicher analytischer Chemiker Sachsens in Chemnitz, 1897. 1 vol. 8vo. Weimar, 1898.

Zeitschrift für öffentliche Chemie.

Bericht über die III.–IV. ordentliche Hauptversammlung des Verbandes selbstständiger öffentlicher Chemiker Deutschlands. Frankfurt a-M. und Wiesbaden, 1898–1899.

ICHT ÜBER DIE THÄTIGKEIT DES MILCHWIRTHSCHAFTLICHEN INSTITUTS in Hameln im Jahre 1897–1898. Hameln, 1898–1899. 8vo.

RICHTE DES VERBANDES DER LABORATORIUMS-VORSTÄNDE an deutschen Hochschulen, 1898–1902. Leipzig, 1899–1902 +

DERMANN'S CENTRALBLATT für Agriculturchemie und rationellen Landwirthschaftsbetrieb. (Bibl., p. 1093.)

Generalregister zu Band I–XXV: Jahrgang 1872–1896, zusammengestellt von K. Wedemeyer. Leipzig, 1901. 8vo.

OCHEMISCHES CENTRALBLATT. Vollständiges Sammelorgan für die Grenzgebiete der Medicin und Chemie. Unter Leitung von B. Ehrlich, E. Fischer, O. Liebreich [and others] herausgegeben von C. Oppenheimer. 1 vol. 8vo. Berlin, 1903 +

ITISH (THE) FOOD JOURNAL AND ANALYTICAL REVIEW. The official organ of the International Commission on Adulteration. London, 1899.

LLETTINO CHIMICO-FARMACEUTICO. Eco delle Società di farmacia italiana. Milano, 1900.

ESLAU, UNTERSUCHUNGSAMT. *See* Jahresbericht des . . .

LLETIN DE L'INSTITUT PASTEUR; revues et analyses des travaux de microbiologie, médecine, biologie générale, physiologie, chimie biologique dans leurs rapports avec la bactériologie, 1902–1903. Comité de rédaction: G. Bertrand, A. Besredka, A. Borrel, C. Delezenne, A. Marie, F. Mesnil. Paris, 1902–1903 +

ULLETIN DE LA SOCIÉTÉ CHIMIQUE DE PARIS. (Bibl., p. 1089, and 1st Suppl., p. 452.)

Tables des années 1889 à 1898 dressées par Th. Schneider. Paris, 1900–1901. Two parts. 8vo.

ULLETINS OF THE DIVISION OF CHEMISTRY, U. S. DEPARTMENT OF AGRICULTURE. Washington, D. C., 1898–1902.

For full titles *see* names of Authors and Editors *in Section V.*

No. 54. Report on an Investigation of Analytical Methods for distinguishing between the Nitrogen of Proteids and that of the simpler Amids or Amido-Acids; by J. W. Mallet. 1898.

BULLETINS OF THE DIVISION OF CHEMISTRY. [Cont'd.]

No. 55. The Fertilizing Value of Street Sweepings, by H. W. Wiley and Ervin E. Ewell. 1898.

No. 56. Proceedings of the Fifteenth Annual Convention of the Association of Official Agricultural Chemists. Edited by Harvey W. Wiley. 1899.

No. 57. Proceedings of the Sixteenth Annual Convention of the Association of Official Agricultural Chemists. Edited by Harvey W. Wiley. 1899.

No. 58. The Manufacture of Starch from Potatoes and Cassava. By Harvey W. W [illegible]

No. 59. The Compositio [illegible] an Wines. By W. D. Bigelow. 1900.

No. 60. The Sunflower [illegible] ltivation, composition and uses. By Harvey W. Wiley. [illegible]

No. 61. Pure Food Laws of [illegible] an Countries affecting American Exports. By H. W. [illegible] d W. D. Bigelow. 1901.

No. 62. Proceedings of the [illegible] Annual Convention of the Association of Official Agric [illegible] hemists. Edited by Harvey W. Wiley. 1901.

Continued under the title

BULLETINS OF THE BUREAU OF CHEMISTRY OF THE U. S. DEPARTMENT OF AGRICULTURE.

No. 63. Exhibit of the Bureau of Chemistry at the Pan-American Exposition, Buffalo, N. Y. 1901. Edited by Harvey W. Wiley [*et al.*].

No. 64. The Influence of Environment upon the Composition of the Sugar Beet. By Harvey W. Wiley. 1901.

No. 65. Provisional Methods for the Analysis of Foods. Edited by H. W. Wiley [*et al.*]. 1902.

No. 66. Fruits and Fruit Products. Chemical and Microscopical Examination. By W. D. Bigelow [*et al.*]. 1902.

No. 67. Proceedings of the Eighteenth Annual Convention of the Association of Official Agricultural Chemists. Edited by Harvey W. Wiley. 1902.

No. 68. The Chemical Composition of Insecticides and Fungicides. By J. K. Haywood. 1902.

No. 69. Foods and Food Control. By W. D. Bigelow. 1902. Six parts.

BULLETINS OF THE BUREAU OF CHEMISTRY. [Cont'd.]

No. 70. Manufacture of Table Sirups from Sugar Cane. By H. W. Wiley. 1902.

CHEMICAL [THE] SOCIETY [OF LONDON], Abstracts of the Proceedings of the. 5 vols. London, 1885–1889.

From 1890 continued as:

Proceedings of the Chemical Society. 13 vols. London, 1890–1902 +

N. B.—These "Proceedings" are independent of the periodical with the same title established in 1841.

Collective Index of the Transactions, Proceedings, and Abstracts, 1883–1892. By Margaret D. Dougal. London, *n. d.* [1898]. 2 vols. 8vo.

Vol. I: pp. xv–471; Vol. II: pp. 1147.

CHEMICAL (THE) TRADE REVIEW, Edward Prag, business manager. Philadelphia, 1902.

CHEMIK POLSKI. (Edited by) B. Znatowicz. Warszawa, 1901.

[Polish; weekly journal for theoretical and practical chemistry.]

CHEMIKER-TASCHENBUCH für 1899–1900 nebst Mitgliederliste und Vereinsmittheilungen. Herausgegeben von F. Peters. 2 vols. 8vo. Berlin, 1899–1900.

CHEMISCH-TECHNISCHES REPERTORIUM, Jacobsen, E. (Bibl., p. 1096.)

Siebenter Generalregister zu Jahrgang 31–35 (1892–1896). Berlin, 1898. 8vo.

CHEMISCHE ZEITSCHRIFT. Centralblatt für die Fortschritte der gesamten Chemie. 1901–1903. Herausgegeben von Felix B. Ahrens. 2 vols. 4to. Leipzig, 1902–1903 +

CHEMISCHES CENTRALBLATT. (Bibl., p. 1135.)

General-Register über die fünf Jahrgänge 1897 bis 1901 (10 Bände 1897^{I} bis 1901^{II}) (Autoren- und Sach-Register; Register der Patentnummern), bearbeitet von Rudolf Arendt). Berlin, 1902. 1 vol. 8vo.

CHIMICA (LA) INDUSTRIALE; rivista tecnica, industriale e commerciale pubblicata per cura dell' associazione chimica industriale. 1 vol. 4to. Torino, 1899.

Eis- und Kälte-Industrie. Herausgegeben und redigirt von C. Schmitz. 4 vols. 4to. Berlin, 1899–1903 +

Electro-Chemist (The) and Metallurgist. 2 vols. 8vo. London, 1901–1903 +

Electrochemical Industry. 1 vol. 4to. Philadelphia, 1902–1903 +

Elektrochemische Technik. Stichwörter-Repertorium der angewandten Elektrochemie, der Elektrometallurgie und Galvanotechnik. Herausgegeben und verlegt von Franz Peters. Berlin, 1903.

Farbenzeitung. Fachblatt für die gesammte Farben- und Lackfabrikation, sowie den einschlägigen Handel. Redigirt von H. Freese. 8 vols. 4to. Leipzig, 1896–1903 +

Forschungs-Berichte über Lebensmittel und ihre Beziehungen zur Hygiene, über forense Chemie und Pharmakognosie. (Bibl., 1st Suppl., p. 457.)

United in 1898 with : Zeitschrift für Untersuchung der Nahrungs- und Genussmittel.

Friedel, Charles.

See Revue générale de chimie.

Gazzetta chimica italiana. (Bibl., p. 1107.)

Indice generale dei Volumi 1–20 (Anni 1871–1890). Palermo, 1898. 8vo.

Hameln; Milchwirthschaftliches Institut. *See* Bericht über die Thätigkeit.

Hofmeister, F.

See Beiträge zur chemischen Physiologie und Pathologie.

Hubert, P.

See Album-Annuaire de l'acétylène.

Industrie (L') betteravière. Organe bimensuel des producteurs de betteraves, fabricants de sucre, distillateurs, etc., et des industries qui s'y rattachent. Condé, 1901.

Internationaler Congress für angewandte Chemie. *See* Bericht über den —.

Jacobsen's Repertorium. *See* Chemisch-technisches Repertorium.

HRBUCH DER ELEKTROCHEMIE. Begründet und bis 1901 herausgegeben von W. Nernst und W. Borchers. Berichte über die Fortschritte des Jahres 1894–1902, herausgegeben von H. Danneel. 9 vols. 8vo. Halle, 1895–1903 +

HRBUCH DER VERSUCHS- UND LEHRANSTALT für Brauerei in Berlin, 1898–1901. 4 vols. 8vo. Berlin, 1899–1902 +

HRBUCH DES VEREINS DER SPIRITUS- FABRIKANTEN, des Vereins der Stärke-Interessenten in Deutschland und der Brennerei-Berufsgenossenchaft. Ergänzungsband zur Zeitschrift für Spiritus-Industrie. Für die Schriftleitung verantwortlich G. Heinzelmann. Berlin, 1901.

HRBUCH FÜR ACETYLEN UND CARBID. Berichte über die wissenchaftlichen und technischen Fortschritte. 1899–1901. Im Auftrage des Deutschen Acetylenvereins herausgegeben von M. Altschul, K. Scheel, und J. H. Vogel. 3 vols. 8vo. Halle, 1899–1902 +

HRBUCH FÜR DAS EISENHÜTTENWESEN. (Ergänzung zu "Stahl u. Eisen.") Bericht über die Fortschritte auf allen Gebieten des Eisenhüttenwesens im Jahre 1900. Jahrgang 1. Im Auftrage des Vereins Deutscher Eisenhüttenleute bearbeitet von O. Vogel. 1 vol. 8vo. Düsseldorf, 1902.

HRESBERICHT des chemischen Untersuchungsamtes der Stadt Breslau, 1898. Im Auftrage des Curatoriums erstattet von B. Fischer. Berlin, 1900.

HRESBERICHT über die Fortschritte der Chemie und verwandter Theile anderer Wissenschaften. (Bibl., p. 1116.)

Generalregister zu den Jahrgängen 1877 bis 1886. Braunschweig, 1897–1899. Three parts in five.

HRESBERICHT über die Untersuchung und Fortschritte auf dem Gesammtgebiete der Zuckerfabrikation. (Bibl., p. 1118.)

Alphabetischer Sach-Register zum Jahrg. 1–40 (1861–1900). Braunschweig, 1901. 8vo. Ill.

URNAL OF THE AMERICAN CHEMICAL SOCIETY. (Bibl., p. 1138.)

General Index to the first twenty volumes, 1879–1898, and to the Proceedings, 1877–1879. Easton, Pa., 1902.

JOURNAL OF THE SOCIETY OF CHEMICAL INDUSTRY. (Bibl., p. 1124.)
Collective Index from 1882–1895. Vols. I to XIV. Compiled by F. W. Renaut. London, 1899. 4to.

KALENDARZ DLA CUKROWNÍKOW. S. Broniewski, i T. Rutkowski. Warszawa, 1891–1900. 12mo.

KALENDER für Acetyleniker für das Jahr 1899, herausgegeben von H. F. B. Schäfer. 1 vol. 12mo. Berlin, 1898.
Continued as :
Acetylen-Kalender für das Jahr 1900. 1 vol. 12mo. Leipzig, 1899.||

KALENDER UND WEGWEISER für Acetylen-Techniker und Installateure für das Jahr 1903. Herausgegeben von Bernat und K. Scheel. 1 vol. 12mo. Halle, 1903.

LAUBER'S MONATSHEFTE FÜR FÄRBER UND DRUCKER. Organ des Färbermeister-Vereins von Nordböhmen und der Oberlausitz. 1. Jahrg. Oct., 1899–Sept., 1900. 1 vol. 8vo. Leipzig, 1899–1900.

MÉMOIRES de physique et de chimie de la Société d'Arcueil. Paris, 1807–1817. 3 vols. 8vo.

METALLOGRAPHIST (THE). A quarterly publication devoted to the study of metals with special reference to their physics and microstructure, their industrial treatment and applications. Edited by Albert Sauveur. Boston, 1898.

MITTHEILUNGEN aus der königlichen Prüfungsanstalt für Wasserversorgung und Abwässerbeseitigung. Herausgegeben von A. Schmidtmann u. C. Günther. 1 vol. 8vo. Berlin, 1902.

NAPHTA. Organ des Galizischen Landes- Petroleum- Vereines für die Petroleum und Erdwachs-Industrie. Herausgegeben und redigirt von R. Zaloziecki. 10 vols. 4to. Leipzig, 1893–1902 +

NEDERLANDSCHE TIJDSCHRIFT VOOR PHARMACIE, CHEMIE EN TOXICOLOGIE. (Bibl., 1st Suppl., p. 402.)
Tienjaarlijksche inhoudsopgave benevens register van auteurs (1889–1898). s'Gravenhage, 1899. iv, 89 pp. 8vo.

OESTERREICHISCHE CHEMIKER-ZEITUNG, UND "ZEITSCHRIFT FÜR NAHRUNGSMITTEL-UNTERSUCHUNG, HYGIENE UND WAARENKUNDE." Officielles Organ des "Vereines oesterreichischer Chemiker in Wien." Herausgegeben von H. Heger und E. Stassny. Neue Folge. Jahrgang 1–6, 1898–1903. 6 vols. 4to. Wien, 1898–1903 +
Continuation of : Zeitschrift für Nahrungsmittel-Untersuchung.

TERS, F.
See Chemiker Taschenbuch.

RETZSCHNER, B.
See Allgemeiner Anzeiger der Thon-Industrie.

ÉVOYANCE PHARMACEUTIQUE. Bulletin mensuel officiel. Paris, 1897.

OCEEDINGS OF THE INSTITUTE OF CHEMISTRY. [30 Bloomsbury Square.] London, 1878–1902.

ZEGLAD CHEMICZNY, pod redakcya A. Peszkego. Warszawa, 1900.

ICHS-CHEMIKER-KALENDER für das Jahr 1902. Leipzig, 1902.

VUE DE CHIMIE ANALYTIQUE appliquée à l'industrie . . . 6 vols. Paris, 1893–1898.

In 1899 this was merged with : Annales de chimie analytique appliquée à l'industrie. (Bibl., 1st Suppl., p. 449.)

VUE DES PRODUITS CHIMIQUES. Journal des fabricants et négociants en produits chimiques, drogueries, couleurs, et vernis. Rédigé par P. Blondel. 5 vols. 4to. Paris, 1898–1902 +

VUE GÉNÉRALE DE CHIMIE, pure et appliquée. Directeur scientifique : Charles Friedel. Rédacteur et administrateur : George F. Jaubert. 4 vols. 8vo. Paris, 1899–1902 +

CHSEN, Vereinigung öffentlicher analytischer Chemiker . . . in Chemnitz.
See Bericht über die zehnte Hauptversammlung.

HÄFER, H. F. B.
See Kalender für Acetyleniker.

HEEL, K.
See Acetylen in Wissenschaft und Industrie ; *also* Jahrbuch für Acetylen ; *also* Kalender und Wegweiser für Acetylen-Techniker.

HEIKUNDIG JAARBOEKJE, 1900. Redigeert van W. P. Jorissen, A. B. van Ketel, L. F. Reicher, J. Rutten. 2 vols. Middelharnis, 1900–1901.

Continued as :

Scheikundig jaarboekje voor Nederland, België en Nederlandsche Indië. Onder redactie van P. Jorissen [etc.]. Middelharnis, 1902 +

STRALSUND, STADT.
See Bericht über das chemisch-hygienische Untersuchungsamt. . . .

TASCHENBUCH FÜR DEN ACETYLEN-TECHNIKER, 1900. Nebst Adressbuch der Carbid- und Acetylen-Industrie. Herausgegeben von A. Ludwig. 12mo. Berlin, 1900.

TECHNOLOGIE SANITAIRE. Moniteur des distributions d'eau et de l'hygiène appliquée. Revue internationale bi-mensuelle. Publiée sons la direction d'un comité de rédaction; Directeur: Victor J. van Lint. 1894–1902. 9 vols. 8vo. Paris, 1895–1903 +

TIJDSCHRIFT VOOR TOEGEPASTE SCHEIKUNDE EN HYGIENE. Onder redactie van L. Th. Reicher en W. P. Jorissen. Middelharnis, 1898.

TON-INDUSTRIE (DIE). *See* Allgemeiner Anzeiger der Thon-Industrie.

TRANSACTIONS OF THE AMERICAN ELECTROCHEMICAL SOCIETY. 4 vols. 8vo. Philadelphia, 1902–1903 +

VERBAND DER LABORATORIUMS-VORSTÄNDE AN DEUTSCHEN HOCHSCHULEN. *See* Berichte des Verbandes.

VERZEICHNISS der Rübenzuckerfabriken und Zuckerraffinerien im Deutschen Reiche, sowie in Oesterreich-Ungarn, Frankreich, Russland, Dänemark, Schweden, England, Italien, Spanien, Nordamerika, etc. 18 vols. 8vo. Magdeburg, 1884–1902 +

VOGEL, O.
See Jahrbuch für das Eisenhüttenwesen.

WASSER (DAS). Referirende Zeitschrift über Leistungen und Fortschritte für die gesammte Wasserkunde. Herausgegeben von J. H. Vogel. 2 vols. 8vo. Berlin, 1901–1902 +

WIESBADEN; VERBAND SELBSTSTÄNDIGER ÖFFENTLICHER CHEMIKER. *See* Bericht über die III–IV ordentliche Hauptversammlung.

YEARBOOK OF COLORISTS AND DYERS, presenting a review of the year's advances in the Bleaching, Dyeing, Printing, and Finishing of Textiles.* New York, 1898 [+ ?]

* Edited by H. Huntington.

ZALOZIECKI, R.
See Naphta.

SCHRIFT FÜR DEN PHYSIKALISCHEN UND CHEMISCHEN UNTERRICHT. (Bibl., p. 1156.)
eneralregister für Jahrgang I–X (1887–1897) bearbeitet von O. Ohmann. Berlin, 1898. 4to.

SCHRIFT FÜR FARBEN- UND TEXTIL-CHEMIE. Mit Einschluss der verwandten Gebiete der organischen chemischen Industrie und der Textil-Industrie. Herausgegeben von Arthur Buntrock. 1 vol. 8vo. Braunschweig, 1902 +

SCHRIFT FÜR PHYSIKALISCHE CHEMIE, STÖCHIOMETRIE UND VERWANDTSCHAFTSLEHRE. (Bibl., p. 1157.)
amen u. Sachregister über Band I–XXV, bearbeitet von T. Paul. Leipzig, 1900. 8vo

SCHRIFT FÜR STÄRKE-INDUSTRIE. Fachblatt für die Stärke-, Stärkezucker-, Syrup-, Dextrin-, etc., Fabrikation. 1900–1901. 2 vols. 8vo. Leipzig, 1901.

Continued as:

itschrift für Spiritus- und Stärke-Industrie, sowie der Presshefe-, Essig-, Dextrin-, Syrup- und Stärkezucker-Fabrikation. 1901–1902. 1 vol. 4to. Leipzig, 1902 +

OWICZ, B.
See Chemik Polski.

CHERO ITALIANO (LO). Bollettino mensile della Società italiana dell' industria dello zucchero. Diretto da D. Monzilli. Roma, 1901.

SECTION VIII.

ACADEMIC DISSERTATIONS.

When the names of two towns are affixed to a title, the first one (in parenthesis) is the seat of the University from which the Dissertation issues, the second is the place of publication. The size is 8vo unless otherwise indicated.

ABEATICI, MENOTTI. Zur ion tautomerer Verbindungen mit der Gruppe C O H zburg, 1901.

ABEL, EMIL. Über das ht zwischen den verschiedenen Oxydationsstufen desse alles. Leipzig, 1901.

ABELL, ROBERT DUNCOMBE die Kondensation von Aethylphenylketon mit Be und Benzoësäure-Aethylester und eine Synthese des 1..phenyldimethylcyclopentans. Leipzig, 1902.

ACH, FRITZ. Die Bedeutung der Aldehyd- und Ketonsäuren für die Synthese stickstoffhaltiger Verbindungen soll nach der bis zum Ende des Jahres 1886 erschienenen Litteratur historisch und systematisch dargestellt werden. Würzburg, 1888.

ADAMIANZ, SUREN. Über Diacetonaminoxim, seine Überführung in Diacetondiamin und Methylpentandien (Methylisopren). Berlin, 1901.

ADLER, HERMANN. Ueber Nickelocyanid. (Bern). St. Gallen, 1897.

ADLUNG, A. Beiträge zur Kenntniss einiger sauerstoffhaltiger Bestandtheile ätherischer Oele, mit besonderer Berücksichtigung ihres Verhaltens gegen Nitrosylchlorid. Marburg, 1901.

ADOLPH, GUSTAV. Beiträge zur Kenntnis des Isothujons. Göttingen, 1899.

AEBI, WALTHER. Recherches synthétiques sur les rosindulines. Genève, 1898.

KERBERG, T. Ueber die Geschwindigkeit der elektrolytischen Zersetzung von Oxalsäure bei Gegenwart von Schwefelsäure. Basel, 1902.

KSELROD, SALOMON. Ueber optisch aktive Citramalsäure. Berlin, 1899.

BERT, MAX. Über Methylanisylchlorphosphin und einige Derivate desselben. Rostock, 1899.

BERTI, FRIEDRICH. Ueber a-Jod-p-methylchinolin und die sich von demselben ableitenden Verbindungen mit dreiwertigem Jod. (Freiburg i. B.). Berlin, 1901.

BRECHT, ERNST. Zur Kenntnis des β-Benzylisochinolins und seiner Homologen. Kiel, 1900.

BRECHT, WALTHER. Über Cyclopentadiënchinone. Kondensationsversuche mit Diphenylmethan. Dihydronaphtalin und Cyclopentadiën. (München). Berlin, 1902.

ECHSIEFF, NICOLAUS. Reactionszeiten bei Durchgangsbeobachtungen. Leipzig, 1900.

ÉN, JOH. EDV. Om några derivat af naftalins α- och β-sulfonsyror. Upsala, 1883.

EXANDER, ERICH. Reaktionen von Salzen in Aethylacetat. Giessen, 1899.

FA, JOHANN. Über fluorierte Phosphate, Sulfate, Selenate, Tullurate und Dithionate, (München). Leipzig, 1899.

FFERS, FRANZ. Quantitative Trennungen im Bromstrome, mit Hydroxylamin und Wasserstoffsuperoxyd. Heidelberg, 1898.

IOTH, MANFRED A. Studien über Chinone und Hydrochinone. Basel, 1900.

LENDORFF, PAUL. Zur Kenntniss aromatischer Ketone. (Heidelberg). Schönebeck a. Elbe, 1898.

OY, JULES. Recherches sur l'uranium et ses composés. (Toulouse). Paris, 1901. 4to.

PERIN, D. Über das 2'-Aethoxy-a-Naphtoflavon. Bern, 1899.

Am Rhyn, Heinrich. Zur Kenntnis des 3-Oxyflavons. Bern, 1901.

Amme, Otto. Oxydation von Substitutionsproducten des p-Oxybenzaldehydphenylhydrazons zu Osazonen. Kiel, 1902.

Amos, Max. Ueber Diamidolutidin und Dioxylutidin. Heidelberg, 1902.

Anderson, Ax. Eug. Elementarafhandling i oorganiska kemien. I. Metalloiderna och deras föreningar. (Vëxiö), Jönköping, 1859.

Andrée, Carl. Beiträge zur [illegible]s des Cinchonin. Freiburg-i-B., 1885.

Andrée, Carl. Ueber die Einwirkung einiger Aldehyde auf Methyl- resp. Aethylamin und die Reduktion der Kondensationsprodukte. Breslau, 1902.

Anger, Albert. Ueber den Umsatz und Ansatz der Aschenbestandtheile, vornehmlich von Kalk, Magnesia Kali und Phosphorsäure, bei Milchkühen. (Heidelberg). Bonn, 1898.

Angerstain, S. Ueber das 4.6-Dimethylpyrimidin und dessen Derivate. Berlin, 1900.

Ansel, Otto. Ueber Vinylidenoxanilid. Tübingen, 1899.

Anselmino, Otto. Konstitution und Umwandlungen von Phenolbromiden. Heidelberg, 1900.

Apel, Max. Untersuchungen über mittels Formaldehyd aus Aldehyden und Ketonen synthetisch gewonnene mehrwertige Alkohole. I. Ueber das Pentaglycol. II. Ueber den "Anhydro-Ennea-Heptit." (Göttingen). Heiligenstadt, 1895.

Apitzsch, Hermann. Beitrag zur Kenntniss der Nitrosobasen. Erlangen, 1895.

Arend, Kurt von. Ueber die Einwirkung von Phosphorchloriden auf einige Amine und über Ester der N-Oxychlorphosphine der aromatischen Reihe. Rostock, 1899.

Ark, Henri Hartong van. Beiträge zur Kenntniss der Einwirkungsprodukte von Pyridin, Piperidin, Chinolin und Tetrahydrochinolin auf Monobromacetophenon. Marburg, 1897.

ARMSTRONG, EDWARD FRANKLAND. Über das Halbhydrat von Calciumsulfat. Berlin, 1901.

ARNDT, BALDUIN GEORG. Über die Einwirkung von Äthylenbromid auf Natriumbenzoylessigester und die daraus resultierenden Produkte. Leipzig, 1901.

ARNDT, HANS. Ueber ein neues Verfahren zur Herstellung keimfreien Trinkwassers durch Chlor und Gallussäure. (Rostock). Marburg, 1898.

ARNDTS, JOSEPH. Beiträge zur Kenntnis des Benzoins. Heidelberg, 1901.

ARNELL, KN. ER. Bidrag till kännedom om naftalins klorsulfonsyror. Upsala, 1889.

ARNOLD, CARL. Über einige Phtalylderivate der Tolylhydrazine. Rostock, 1898.

ARNOLD, EMIL. Über Tri-, Tetra-jodbenzole und das Penta-jodbenzol. (Freiburg i. B.) Karlsruhe, 1900.

ARNOLD, W. Beiträge zur Kenntnis des Akridins. Freiburg, 1901.

ARNOLD, WILHELM. Ueber Luminescenz. Erlangen, 1896.

ASCH, DAGOBERT. Zur Kenntnis der Schwefligmolybdate. Berlin, 1902.

ASCH, W. Beitrag zur Chemie der Silicomolybdate. Berlin, 1901.

ASCHAN, AD. OSSIAN. Om sulfokarbimiders inverkan på amidosyror. Helsingfors, 1883.

ASRIEL, MORIZ. Physikalisch-chemische Studien über aromatische Sulfinsäuren. (Heidelberg). Wien, 1900.

ASTRUC, A. Alcalimétrie des alcaloïdes. Montpellier, 1901.

ATENSTÄDT, PAUL. Über die Einwirkung von Phenoxyacetylchlorid auf Benzolhomologe sowie Phenoläther und eine neue Synthese des Cumaranons. Rostock, 1902.

ATHANASESCU, BASILE. Sur la laudanosine et un essai de synthèse de la papavérine. Genève, 1900.

ATKINSON, HARFORD MONTGOMERY. Beiträge zur Kenntniss der Oxaline und über einige Derivate der unsymmetrischen Dipropyl- und Diamyloxaminsäuren. (Göttingen). Hildesheim, 1900.

RBERG, ALB. Några bidrag till kännedomen om molybden. (Upsala). Stockholm, 1872.

AUE, WILHELM. Ueber die Einwirkung von Nitrobenzol auf Anilin bei Gegenwart von Alkali. Berlin, 1902.

AUERBACH, ERNST BERTHOLD. Über eine neue Synthese des Tetraphenylcyclopentans durch Reduktion des Desoxybenzoinbenzylidenacetophenons. Le 99.

AUERBACH, G. Ueber die Elekt von geschmolzenem Jodblei und Chlorblei in Rücksicht Anwendung des Faraday'schen Gesetzes u. die Theori ener Salze. Zürich, 1901.

AUERBACH, M. Ueber die Oxyd tertiärer Basen mit Wasserstoffsuperoxyd. Berlin, 1900

AUERBACH, MARTIN. Ueber Jodoso- und Jodiniumverbindungen aus β-Jodnaphtalin. Freiburg i. B., 1900.

AUFHÄUSER, DAVID. Ueber die Hydrazide der beiden Oxypropionsäuren. Heidelberg, 1902.

AUSSUM, HANS. Paramethylorthobenzylbenzoësäure und einige Derivate derselben. Greifswald, 1898.

BABEL, M. ALEXIS. Contribution à l'étude des relations entre le pouvoir rotatoire et l'isomérie de position. Genève, 1898.

BACH, HERMAN. 1. Ueber Condensationsreactionen des Aldehydcollidins mit substituierten aromatischen Aldehyden. 2. Ein Beitrag zur Kenntniss des Phenyl-α-Picolylalkins. Breslau, 1901.

BACKE, ARNOLD. Ueber die Bildung von Pyrazinen aus o-Diketonen. Kiel, 1898.

BACKE, PAUL. Ueber die Einwirkung von Cuminol auf α-Picolin. Breslau, 1901.

BADEL, ELIE. Elimination du cacodylate de soude. Montpellier, 1900.

Bärenfänger, Carl. Ueber Derivate des p-Tolylaldehydes und Resorcylaldehydes. Heidelberg, 1900.

Baermann, Arthur. Beiträge zur Kenntnis der aromatischen Aldehyde. (Heidelberg). Berlin, 1902.

Bahatrian, Gabriel. Recherches sur l'aminoquinone et ses dérivés. Genève, 1898.

Bailey, James R. Ueber Hydrazin-, Hydrazo-, und Semicarbazidderivate der Propionsäure. München, 1897.

Baillie, Thomas Bryson. Über die electrolytische Reduction von säureamidartigen Substanzen. Würzburg, 1899.

Bakscht, Abraham. Studien über die Aminolyse. Heidelberg, 1900.

Baldy, F. Essai des aluminiums industriels et des métaux solubles dans l'acide chlorique. Montpellier, 1900.

Bamberg, Friedrich. I. Ueber Triphenyl-methyl-methan. II. Zur Kenntnis der aromatischen Sulfinsäuren und Thiophenole. Heidelberg, 1898.

Bamberg, Paul. 1. Zur Kenntnis halogenisierter und nitrierter Diazosalze. 2. Zur Kenntnis des Cotarnins. (Würzburg). Berlin, 1902.

Bamberger, Heinrich. Ueber Condensation von Paranitroanilin mit Acet- und Propionaldehyd. (Basel). München, 1896.

Bandke, Erich. Ueber Gleichgewichte in basischen Lösungsmitteln. (Heidelberg). Berlin, 1898.

Barche, Grégoire. Recherche dans le groupe des colorants oxaziniques et aziniques. Genève, 1899.

Barillé, A. Phosphates de calcium. Action de l'ammoniaque sur leurs dissolutions acides. Action de l'acide carbonique sous pression. Paris, 1900.

Barin, L. Action de l'acide amino-acétique sur la benzoquinone et la benzoquinone trichlorée. Montpellier, 1901.

Barlow, Willy. Kondensationen von Amidoguanidin und Semikarbazid mit Chinonen. München, 1896.

Barrué, F. Étude pharmacotechnique des médicaments obtenus par saponification des corps gras. Des savons. Du savon médicinal amygdalin. Toulouse, 1898.

Barschall, Hermann. Synthese des Pentantrions. Zur Kenntnis d. Reaction saurer Methylengruppen mit Nitrosodialkylanilin. Berlin, 1902.

Bartels, Amandus. I. Ueber Einwirkung von Aethylengas auf Pseudocumol bei Gegenwart von Aluminiumchlorid. II. Eine neue Methode zur Darstellung hochalkylierte Kohlenwasserstoffe. III. Ueber Hexaäthylbenzol. Heidelberg, 1899.

Bartelt, Konrad. Ueber Merkaptole und Sulfone der Diketone. Greifswald, 1901.

Barth, Adolf. 1. Charakteristik von Pseudosäuren durch abnorme Beziehungen zwischen ihren Affinitätskonstanten und der Hydrolyse ihrer Salze. 2. Über Beziehungen zwischen Farbe und Konstitution von Oximidoketonen und ihren Derivaten. Würzburg, 1901.

Barth, Georg. Chemische Studien über die Bitterstoffe des Hopfens. (Rostock). München, 1900.

Barth, Theodor. Ueber Diphenylaminderivate und Azine. Basel, 1898.

Bartoszewicz, Stephan. Ueber einige Condensationsproducte des β-Naphtyl-Methylketons. (Bern). Lemberg, 1898.

Bartow, Edward. Ueber neue aus m-Isocymol abgeleitete Verbindungen. Göttingen, 1895.

Bartsch, Fritz. Über Synthesen des Cumaranons und einiger Homologen. Rostock, 1900.

Bartsch, Walther. Kryoskopische Untersuchungen. Heidelberg, 1899.

Bartsch, Willy. Synthesen mit Hilfe von Blausäure. Heidelberg, 1900.

BASCH, E. E. Die künstliche Darstellung und die Bildungsverhältnisse des Polyhalit. Berlin, 1901.

BASKERVILLE, CHAS. A Comparison of the Methods of Separation and Estimation of Zirconium. (University of North Carolina). Chapel Hill, N. C., 1894.

BATT, LUDWIG. Ueber die Einwirkung von Zimmtaldehyd auf bernsteinsaures Natrium bei Gegenwart von Essigsäureanhydrid. Strassburg i. E., 1901.

BAUD, ACHILLE. Contribution à l'étude de la polymérisation des liquides organiques. Genève, 1901.

BAUDRAN, GEORGES. Étude sur les émétiques. Paris, 1900.

BAUER, ALEXANDER. Ueber die Phenyl-γδ-Pentensäure. Basel, 1898.

BAUER, CARL. Ueber das ätherische Oel von Phellandrium aquaticum und das in demselben enthaltene Terpene. Freiburg-i. B., 1885.

BAUER, FRIEDR. EUGEN. Beiträge zur chemischen Kenntnis der Pfefferfrucht. München, 1896.

BAUER, PAUL. Ueber die Producte der Einwirkung von Hydrazin auf Thioharnstoffe. (Erlangen) Leipzig, 1900.

BAUER, RUDOLPH. Ueber die Einwirkung von ω-Dihalogen-Ketonen und einigen aromatischen Aldehyden auf Benzamiden. Rostock, 1902.

BAUER, RUDOLPH. Ueber die Reduktion der m-Amidobenzoesäure. München, 1900.

BAUER, WILHELM. Ueber das benachbarte Dihydrotetrazin. Tübingen, 1901.

BAUER, WILHELM. Ueber die Entschwefelung von aryldithiocarbaminsauren Ammoniaksalzen. Bamberg, 1902.

BAUGÉ, GEORGES JEAN BAPTISTE. Sur quelques carbonates doubles de protoxyde de chrome. Oxyde salin de chrome. Paris, 1899.

BAUM, MARIE. Über p-Xylylhydroxylamin. Beiträge zur Kenntnis der 1-2-Naphtalendiazooxyds. Zürich, 1899.

BAUMANN, CARL. Zinksulfat ein neues Fällungsmittel für Albumosen. Rostock, 1897.

BAUMANN, GEORG. Ueber ein Dimethyl- und ein Methyläthylglyoxalidin, sowie über die Spaltung des Propylendiamins in seine beiden optischen Isomeren. Breslau, 1896.

BAUMANN, OTTO. Über Verkettungsprodukte des Hydrazobenzols mit aliphatischen Aldehyden und die Einführung eines Benzoylrestes in dasselbe. Leipzig, 1902.

BAUMGÄRTEL, KONRAD Ueb[illegible]ron und Ketoterpin. München, 1897.

BAY, BORUCH. Ueber α-Pyridoylpropionester, α-Pyridoylessigester und einige Oxypyrimidine aus denselben. Berlin, 1902.

BEBIE, JULIUS. Beiträge zur Kenntnis der Nitrocellulosen. (Zürich). Berlin, 1901.

BECHLER, WILHELM. Über isomere Reduktionsprodukte des Äthindiphtalids. Leipzig, 1901.

BECK, HUGO. Über Jodoso-, Jodo- und Jodiniumverbindungen des o-Methyl-a-jodchinolins. Freiburg i. B., 1901.

BECKER, GUSTAV. Zur Kenntniss der sesquioxyd- und titanhaltigen Augite. Erlangen, 1902.

BECKER, H. Contributions à l'étude des colorants du type "Azonium." Genève, 1901.

BECKER, PAUL. Beiträge zur Kenntnis der α-(1)-Naphtochinolin-5-Sulfonsäure und des 5-Oxy-α-(1)-Naphtochinolins. Freiburg i. B , 1899.

BECKH, WALTER. Ueber die Einwirkung von Ammoniak und Aminen auf Oxalessigester. Würzburg, 1896.

BÉDOURET, JEAN-ARTHUR. Contribution à l'étude des métavanadates d'ammoniaque et de soude. Bordeaux, 1901.

BEERMANN, HEINRICH. Kritische Studien über die neueren quantitativen Bestimmungsmethoden der Borsäure mit Einschluss der Turmalinanalyse. (Erlangen). Berlin, 1898.

Behn, Heinrich. Beiträge zur Kenntnis der 1-Phenyl-3-methyl-5-halogenpyrazole. Rostock, 1900.

Behn, Konrad. Synthese aromatischer Alkohole mit Formaldehyd aus substituirten Phenolen. Rostock, 1902.

Behn, Richard. Ueber Hydrochinon-Methylketon und seine Aetherderivate und über die Anwendung der Friedel-Craftsschen Synthese auf Phenole. (Rostock). Berlin [1897].

Behr, Georg von. Einfluss von Zusätzen auf die Hydrolyse von Natriumphenolatlosungen bei der Siedetemperatur. Giessen, 1902.

Behre, A. Beiträge zur Kenntniss der o-Acylverbindungen einiger Ketonsäureester. (Hamburg). Kiel, 1901.

Behrendt, Emil. Verbindungen des vierwertigen Vanadins mit Schwefelsäure und schwefliger Säure. Berlin, 1902.

Beindl, Carl. Untersuchungen über hochmolekulare Amidosäuren. $Cn\ H_{2n}\ (NH_2)\ .\ CO_2H$ u. $Cn\ H_{2n-2}\ (NH_2)\ .\ CO_2H$. München, 1901.

Beisswenger, A. Ueber die Reduction einiger Anhydride der Bernsteinsäure- und Glutarsäuregruppe zu Lactonen. Tübingen, 1902.

Beitter, Albert. Pharmacognostisch-chemische Untersuchung der Catha edulis. Strassburg, 1900.

Belugou, G. De quelques propriétés des acides alcoylphosphoriques. Montpellier, 1898. 4to.

Benack, Julius. Ueber Amidophenyltriazol. München, 1896.

Benker, Karl. Beitrag zur Kenntnis der sterischen Hinderung chemischer Reaktionen. Erlangen, 1899.

Benöhr, Otto. Ueber eine neue Darstellung der γ-Benzoylbuttersäure und ihre Reduktionsprodukte. Leipzig, 1901.

Benrath, Alfred. Ueber die Umsetzung von Metallverbindungen des Dibenzoylhydrazins mit Jod und halogenhaltigen Substanzen. Heidelberg, 1902.

Benzian, Rudolf. Beitrag zur Kenntnis der Thalliumdoppelcyanide. Berlin, 1900.

Berberich, Theodor. Ueber die Einwirkung von salpetriger Säure auf Ortho-Diäthylamidophenol. Freiburg i. B., 1887.

Berchelmann, Wilhelm. Eine Synthese aromatischer Aldehyde. Heidelberg, 1898.

Berchin, B. Simon. Ueber einige Alkyläther des Acetaldoxims. Königsberg, 1901.

Berckhemer, Richard. U[illegible]lkylierte Chinolone. Erlangen, 1900.

Berdel, E. Beitrag zur Kenntniss der Legirungen. Erlangen, 1902. Ill.

Berendes, Rudolf. Zur Kenntniss der aromatischen Sulfinsäuren. (Heidelberg). Halle a. S., 1898.

Berent, Stanislaw. Über das capillare Verhalten der Flächen von Steinsalz und Sylvin gegenüber Mutterlaugen. (Basel). Leipzig, 1896.

Berg, Eduard von. Ueber Phosphate des Rubidiums und Caesiums. Erlangen, 1901.

Berg, Hans von. I. Über einige Derivate des β-Alanins. II. α-Diketone aus α-,β-Olefinketonen. (Basel). Schweinfurt, 1901.

Berg, Lars Joh. Henr. Bidrag till kännedomen om toluolens mono- och bisulfonsyror. Lund, 1882.

Bergdolt, Willy. Zur Kenntnis der Derivate des -p-Aethyl-jodbenzols mit mehrwertigem Jod. Freiburg i. B., 1901.

Berge, August. Derivate des Diaethylacetessigesters. Halle a. S., 1901.

Bergmann, Eduard. Beiträge zur Kenntnis der o-Aminoazoverbindungen. Erlangen, 1901.

Bergstedt, Karl And. Om kloralhydrat. Helsingfors, 1871.

Berl, Ernst. Untersuchungen über Kobaltammoniak-Verbindungen. Zürich, 1901.

BERLIN, NILS JOH. Om sambandet mellan de enkla kropparnes aequivalenttal. Lund, 1859.

BERLINER, ERNST. Über die Ionenwanderung. (Berlin). Gräfenhainichen, 1902.

BERNARD, RODOLPHE. Ueber die Oxydation des Dimethyl-respectiv Diaethylhydrotoluchinons und einige Derivate desselben. Basel, 1897.

BERNSTEIN, MATHIAS. Ueber die Phenyl- und Kresyl-Ester der Bernsteinsäure und anderer Dicarbonsäuren, ihre Derivate und Umsetzungen. Freiburg-i.-B., 1886.

BERTELS, KURT. Ueber Nitroso-m-phenylen-diamin und seine Derivate. Berlin, 1902.

BERTHEIM, ALFRED. Ueber die fluorescierende Verbindung aus Chlor-α-naphtochinonacetessigester. Berlin, 1901.

BERTHOUD, A. L. [Neuchâtelois] : Recherches sur l'action de l'isocyanate de phényle avec les thiamides. Contributions à l'étude de la constitution des thiamides. (Genève). Neuchâtel, 1898.

BERTRAM, WILHELM. Untersuchung des Orthodinitrodiphenylmethan und des Orthodiamidobenzophenon. (Basel). Bonn, 1900.

BESECKE, HEINRICH. Ueber Cetylphenylhydrazin. Rostock, 1898.

BEST, FRIEDRICH. Beitrag zur Kenntniss der α- und β-Naphtyldithiocarbazinsäure sowie der o-Anisyldithiocarbazinsäure und ihrer Condensationsprodukte. Erlangen, 1899.

BEST, H. Ueber die höheren Chloride des Mangans und Chroms. Berlin, 1899.

BETHMANN, FRITZ. Ueber o-Xylalphtalid und einige Derivate. Berlin, 1899.

BETSCH, GEORGES. Über Paradiaminochinon. Basel, 1899.

BETTERIDGE, FREDERIC HENRY. I. Zur Kenntniss alkylister Bernstein- und Glutarsäuren. II. Ueber das kryoskopische Verhalten substituirter Oxyketone in Naphtalin. (Heidelberg). Breslau, 1898.

Borries, Georg. Beiträge zur Kenntnis des Trocknens von Ölen. (Leipzig). Zwickau, 1902.

Borsma, S. E. Curangine, het Glucoside van Curanga amara Juss. Utrecht, 1899.

Borstelmann, Percy. Ueber zwei isomere Aethylcrotonsäuren. Strassburg, 1898.

Bosch, Walter. Organische Quecksilber-Verbindungen. Heidelberg, 1901.

Bost, Francisque. Toxicologie d[illegible]one. (Paris). Villefranche, 1902.

Boudouard, Octave. Recherches sur les équilibres chimiques. Paris, 1901.

Bougault, Joseph. Oxydation de l'anéthol et des composés analogues à chaine latérale propénylique. Paris, 1902.

Bouillet, Henri. Action de l'acide iodique sur l'acide urique. Dosage de l'acide urique. Lyon, 1900.

Bourcart, Edmund. Ueber die Ueberführung des Pyrazolin 3,4,5-Tricarbonsäure-Triäthylesters in Pyrazolin-3,4,5-Triamin. Heidelberg, 1900.

Boyd, Harold de Haven. Ueber Methylallylmilchsäure und ihre Umlagerung in Dimethylhydrofurancarbonsäure. Strassburg, 1898.

Brackel, Oswald von. (1.) Ueber die Umwandlung von untersalpetriger Säure in Hydrazin. (2.) Einige Abkömmlinge des m-Cyanbenzylchlorids. Breslau, 1901.

Brady, Friedrich. Über die Einwirkung von Alkalien und Oxydantien auf β-Phenylhydroxylamin. Zur Kenntnis des Chemismus bei der Umlagerung von Arylhydroxylaminen im Amidophenole. Zürich, 1900.

Bräuer, Robert. Versuche über Anilidbildung und Nitrierung. Heidelberg, 1899.

Braeunig, August Friedrich Karl. Beitrag zur Kenntniss des Glutinpeptons. (Erlangen). Dresden, 1899.

BINDSCHEDLER, EMIL. Über Oxalatoaquotriamminkobaltsalze und komplexe Triamminkobaltiakverbindungen. Zürich, 1901.

BIRSCHEL, EDMUND. Pseudoketochloride und Pseudoketobromide aus p-Dioxybenzhydrol und deren Umwandlungsprodukte. Marburg, 1900.

BISCHOFF, JOSEPH. Ueber die Einwirkung von Mineralsäuren auf o-Oxy-1-5-Diketone. (Bern). Frankfurt-a. M., 1897.

BISCHKOPFF, EDUARD. Zur Kenntnis der Glauconinsäuren. Halle a. S., 1898.

BLACH, LEO. Über isomere Xylitone. (Heidelberg). Wiesbaden, 1900.

BLADIN, JOH. AD. Studier öfver aromatiska ortodiaminer och fenylhydrazins cyanadditionsprodukter. Upsala, 1888.

BLAGDEN, JOHN WILLIAM. Ueber Diazoniumsalze und deren Verhalten gegen Cuproverbindungen. Würzburg, 1899.

BLAISE, E. E. Recherches synthétiques sur les produits d'oxydation des dérivés du camphre. Paris, 1899.

BLANC, G. Étude de l'acide isolauronolique. Constitution de l'acide camphorique, du camphre et de ses dérivés. Paris, 1899.

BLANCK, EDWIN. Untersuchungen über die unvollkommene Colloïdnatur anorganischer Salze. Heidelberg, 1901.

BLEIER, LEOPOLD. Ueber die Einwirkung von Aethylendiamin auf Trimethylenbromid und Benzylchlorid. Breslau, 1899.

BLEMBEL, ALEXANDER. Ueber Monobrom-Methylheptenon und seine Derivate. Göttingen, 1901.

BLIX, MARTIN. Über das Borimid $B_2(NH)_3$ und seine Stellung unter den verwandten anorganischen Verbindungen. Berlin, 1902.

BLOCH, MORIZ. Synthesen einiger Chromonderivate. (Bern). Berlin, 1901.

BLOMSTRAND, CHR. WILH. Chlorens förhållande till molybden. Lund, 1855.

BRAUN, L. Ueber die Beeinflussung der Absorptionscoefficienten von Stickstoff und Wasserstoff in wässerigen Lösungen durch Stoffe verschiedenen Dissociationsgrades. Berlin, 1900.

BRAUN, RICHARD. Beiträge zur Kenntniss des Liebstock Oels. Breslau, 1896.

BRAUNMÜLLER, EUGEN. Ueber Synthesen in der Pyrazinreihe. Kiel, 1899.

BREDIG, GEORG. Anorganische Fermente. Darstellung kolloidaler Metalle auf elektr. Wege u. Untersuchung ihrer katalyt. Eigenschaften. Leipzig, 1901.

BREDT, J. Die Beziehungen zwischen Atomgewicht und Eigenschaften der chemischen Elemente. Hermannstadt, 1902.

BREITENBACH, P. Ueber die innere Reibung der Gase und deren Aenderung mit der Temperatur. Erlangen, 1898.

BRENDLER, WOLFGANG. Über die Reactionsfähigkeit organischer Ammoniumsalze. Würzburg, 1899.

BRENNEISEN, MARKUS. Ueber die Einwirkung von Cyankalium auf Brompikrin. (Schweiz). Freiburg, 1898.

BRESLAUER, ADOLF. Beiträge zur Kenntnis der Phenylacetonsäure. Strassburg, 1900.

BRETSCHNEIDER, WILLIAM. Ueber die Einwirkung schwefliger Säure auf aromatische Hydroxylamine. (Rostock). Leipzig, 1897.

BREUSTEDT, G. Beiträge zur Kentniss der aromatischen Hydrantinoine. Basel, 1902.

BRINER, E. Recherches sur l'électrolyse du chlorure de sodium. Genève, 1902.

BRIZARD, LÉOPOLD. Recherches sur la réduction des composés nitrosés du ruthénium et de l'osmium. Paris, 1900.

BROCARD, MARCEL. L'utilisation des sucres dans la nutrition. Les Hexoses et le Bihexoses. Paris, 1901.

BROCKERHOF, HEINRICH. Ueber die Einwirkung von Chloraceton auf Nitrophenole und eine Synthese des α- (2-) Methyl- Phenmorpholins. Rostock, 1897.

Brockmann, Paul. Ueber Phtalylhydroxylamin und verwandte Verbindungen. Königsberg i. Pr., 1898.

Brode, Johannes. Katalyse bei der Reaktion zwischen Wasserstoffperoxyd und Jodwassertoff. Leipzig, 1901.

Broich, Heinrich von. Beiträge zur Kenntnis der gebromten Amine der Fettreihe. (Rostock). Bonn, 1897.

Broicher, Josef. Ueber Oxydationsprodukte von Phenolen und Phenolbromiden. Heidelberg, 1900.

Broichsitter, Gustav. Über die Einwirkung von Äther und Aluminiumchlorid auf Pseudocumidin, sowie über einige neue Derivate des 3-5-Diaethylphenol-1. Heidelberg, 1901.

Browne, Jr., Charles Albert. Ueber die Bestandtheile des Mais-Marks und des Hollunder-Marks und das gleichzeitige Vorkommen von Araban und Xylan in den Pflanzen. Göttingen, 1901.

Brüggemann, Heinrich. Bestimmung von Fuselöl in alkoholischen Flüssigkeiten. Leipzig, 1899.

Brühl, Ernst. Kritische Studien über die Anwendung des Wasserstoff-Superoxydes in der quantitativen Analyse. (Bern). Wiesbaden, 1899.

Bründelmayer, Joseph Anton. Ueber bromierte Säuren des Strychnins. Erlangen, 1899.

Bruger, Paul. Ueber das Pikrotoxin. Berlin, 1898.

Bruhn, Bruno. Ueber einige Derivate des Benzulidenanilins und der Phenylanilidoessigsäure. München, 1897.

Bruhn, Gustav Adolf. Beiträge zur Kenntnis der Rosinduline und der Isorosinduline. Erlangen, 1899.

Bruijn, B. R. de. Bijdrage tot de kennis der evenwichten met twee vlocistofphasen in stelsels van een alkalizout, water en alkohol. Leiden, 1899.

Brun, J. Ueber die Einwirkung alkoholischer Schwefelsäure auf Acyldiazoimide. Zürich, 1902.

BRUNE, FRITZ. Ueber die 3 isomeren Toluolsulfaminsäuren u. deren Umlagerungsprodukte (Toluidinsulfosäuren). Erlangen, 1900.

BRUNNER, OTTO. Untersuchung der electrolytischen Oxydation fetter Alkohole. Giessen, 1899.

BRUNS, HERMANN. Zur Kenntnis des α und β Kamphylamins. Göttingen, 1898.

BRUNSWIG, RICHARD. Synthesen in der Hydropyridinreihe. Heidelberg, 1900.

BRYAN, THOMAS JOSEPH. Ueber Einwirkung von o- und p-Tolylsenföl auf Phenole bei genwart von Aluminiumchlorid. Freiburg, 1901.

BUCHERER, H. T. Ueber die Einwirkung schwefeligsaurer Salze auf aromatische Amido- und Hydroxylverbindungen. Dresden, 1901.

BUCHHOLZ, YNGVE. Zur Kenntniss des β-Aminocrotonsäureesters. (Rostock). Kristiania, 1900.

BUCHNER, MAX. Über Stärke und Salzbildung von Nitraminen und Isonitraminen sowie von Säureamiden. Würzburg, 1899.

BUCKOW, W. Synthese von (1)-Methoxy- und (2-3)-Dimethoxyphenanthren. Berlin, 1901.

BUDDE, CHRISTOPHER. Über arylsulfonierte Alkohole und Säuren. Basel, 1901.

BUEB, JULIUS. Beiträge zur Kenntniss der gechlorten Naphtaline. Freiburg i. B., 1887.

BÜCKEL, CARL. Ueber die Anlagerung einiger Alkohole an Chinon. Heidelberg, 1900.

BÜHNER, ADOLF. Ueber Condensationsprodukte des Indens. München, 1902.

BÜLOW, CARL. Chemische Technologie der Azofarbstoffe mit besonderer Berücksichtigung der deutschen Patentlitteratur. (Leipzig). Tübingen, 1897.

BÜRKLE, EMIL. Dynamische Untersuchungen über die Bildung von Amidoazofarbstoffen. (Heidelberg). Heilbronn, 1900.

DORF, HANS. Ueber Nitrosobenzol. (Basel). Köln, 1896.

LEB, HERMANN. Beiträge zur Kenntnis der Pyrroline. Jena, 1902.

SCHNEWSKI, D. Ueber die Wanderung der Ionen. Berlin, 1901.

ACH, WILHELM. Ueber Para-Nitrobenzylidenchinaldin und einige Derivate desselben. (Erlangen). München, 1890.

L, BENJ. S. Zur Kenntniss der Hexahydroanthranilsäure und über Hexahydroorthophenyldiamin. München, 1896.

LNHEIMER, FRIEDRICH. Das Verhalten des Glycerins gegen Metalloxyde, ein Beitrag zur quantitativen Bestimmung des Glycerins. München, 1897.

ICKE, GEBHARDT. Ueber Cellulose. (Rostock). Berlin, 1900.

IMOWICZ, JOSEPH. Ueber die Einwirkung von Hydrazin auf Thiamide. Königsberg, 1901.

CKHARDT, EDUARD. Ueber Phenolphtaleïn. Basel, 1897.

KARD, EMIL. Studien über die Additionsfähigkeit des Diazomethans an Körper mit Aethylenbindung. Tübingen, 1900.

KART, HANS. Ueber das Verhalten der Thalliumchloride gegen Quicksilbercyanid. Bern, 1897.

NETT, THEODORE R. Über die Bestimmung der Halogensalze nebeneinander. Basel, 1900.

R, ANTON. Über Derivate des o-a-Dimethyl-p-nitrochinolins. Freiburg i. B., 1901.

ROWS, HARRY. Über das Heptabromderivat des as.o-Xylenols. Heidelberg, 1901.

H, HARRY J. Ueber einige Derivate des m-Anisidins und m-Phenetidins. Marburg, 1901.

S, AUGUST. Ueber die Einwirkung von Phosphortrichlorid auf Diphenyl. Rostock, 1897.

, ALFRED. Zur Kenntnis einiger Pyrimidinderivate. Berlin, 1902.

CAESAR, HERMANN. Studien über die Substitutionsvorgänge in der Chinolinreihe. Ueber ana-Nitro-para-Brom-Chinolin und ana-Amido-para-Brom-Chinolin. Freiburg i. B., 1896.

CÄSAR, WILHELM. Einwirkung von Hydrazinhydrat auf alkyl-substituierte Malonester. Heidelberg, 1901.

CAJAR, HERMANN. Ueber o-Aldehydophenoxysäuren. (Schweiz). Freiburg, 1897.

CALOV, GEORG. Über einige neue Cumaron-Derivate. Rostock, 1901.

CALVERT, HARRY THOR[illegible] [illegible]ber die Alkalisalze des Hydroperoxyds in wässeriger L[illegible]g. Leipzig, 1901.

CAMMERLOHER, MAX VON. Zur Kenntnis der Nitroso- und Isorosindonreaktion. Erlangen, 1900.

CAPATINA, ALEXANDRE. Recherches synthétiques dans le groupe de la rosinduline. Genève, 1901.

CAPELLE, CARL. Ueber den Einfluss freier Säuren auf die Reaktion zwischen Ferrisalzen und Jodkalium. Tübingen, 1896.

CAPELLE, E. L'éclairage et le chauffage par l'acétylène; étude technique et pratique. Nouvelle édition, refondue et augmentée. Paris, 1902. 8vo. Ill.

CARETTE, CHARLES. De l'action du carbonate de calcium sur quelques acides minéraux et organiques en solutions alcooliques et des applications qu'on peut en tirer. Lille, 1900.

CARLICZEK, HEINRICH. Ueber einige Derivate der Naphtionsäure. (Freiburg, Schweiz). Breslau, 1897.

CARSTENS, EMMERICH. Ueber einige Derivate des Tertiärbutylbenzols. Rostock, 1897.

CASSEL, JULIUS. Die drei isomeren Chlorphenylsulfaminsäuren und ihre Umwandlungsprodukte. Erlangen, 1900.

CASTENDYCK, CARL. Über Amoniumsilicovanadinmolybdate, eine neue Klasse von chemischen Verbindungen. Bern, 1900.

ASTEX, HENRI. Contribution à l'étude toxicologique des sels de thallium et en particulier du sulfate. (Montpellier). Toulouse, 1900.

ASTNER, WALTHER. Beiträge zur Kenntniss des Aldehydcollidins. Breslau, 1901.

AUBET, JEAN-LOUIS-FERNAND. Liquéfaction des mélanges gazeux. Paris, 1901.

AURO, J. Sur la liquéfaction des gaz. Paris, 1899.

AUSSE, H. Exposé des progrès accomplis récemment dans la connaissance de la constitution des alcaloïdes végétaux. Paris, 1899.

EBRIAN, FRANZ. Ueber die Kondensation von Salicylaldehyd mit Säureamiden. Freiburg. (Schweiz), 1898.

HAIN, MOWSCHA. Ueber Hydrazine in der Chinolinreihe. Berlin, 1899.

HAPELLE, P. Étude du pouvoir réductif dequelques sucres. Nouvelle méthode de dosage pondéral de ces composés. Paris, 1899.

HARABOT, EUGÈNE. Genèse des composés terpéniques dans les végétaux. Paris, 1900.

HRISTELLER, ROBERT. Über die elektrolytische Oxydation von Aminen in alkalischer Lösung zu Azokörpern. (Basel) Zürich, 1900.

HROMETZKA, FRIEDRICH. Über Azoniumbasen. Basel, 1896.

HYDENIUS, JOH. JAK. Om anilins inverkan på platinachlorur och svafvelsyrlig platinaoxidul. Helsingfors, 1859.

LAASZ, MAX. Ueber die Einwirkung von Phenoxylessigsäurechlorid an Acetessigester und Homologe. Rostock, 1902.

LAËSSON, JOH. PET. Om fenyl- och etylsulfacetsyror och af dem erhållna sulfonföreningar. Lund, 1874.

LAISEN, LUDWIG. Ueber die Condensationen der Aldehyde mit Phenolen und aromatischen Aminen. München, 1887.

LAUDIUS, OTTO. Beitrag zur Kenntnis schwefelhaltiger Derivate der Ketosäuren. Greifswald, 1901.

Claus, Martin. Ueber die Einwirkung von Brom auf Dioxytolylphenylmethan und Dioxyditolylmethan Marburg, 1901.

Clauss, Erich. Über p-Toluyl-p-Benzoesäure und p,p-Benzophenondikarbonsäure. Greifswald, 1900.

Clemen, Johannes. Beitrag zur Kenntnis des α-Methylketols. (Halle). Rostock, 1899.

Cleve, Pehr Theodor. Mineral-analytiska undersökningar. Upsala, 1862.

Clever, August. Zur Ke [illegible] er Verbindungen des Selens mit Arsen und Phosphor. [illegible] ien, 1896.

Clowes, George Henry Alexa der. Über Formaldehyd- oder Methylen-Derivate der S [illegible] n der Zuckergruppe und über die quantitative Bestimm [illegible] der Methylen-Gruppen in den Formaldehyd-Condensa [illegible] rodukten. Göttingen, 1899.

Coblitz, Franz. Ueber [illegible] amethylen-β- und γ-ketocarbonsäureester und die [illegible] xamethylencarbonsäure. München, 1895.

Cochenhausen, Ernst von. Die Reinigung des Wassers mit Berücksichtigung seiner Verwendung in der Textilindustrie. (Leipzig). Chemnitz, 1886.

Coebergh, P. T. De chemische dynamica der omzetting van chloor- en broom azijnzuur. Utrecht, 1901.

Cohén, Hermann. Ueber stickstoffhaltige Kondensationsprodukte und über polymere Modifikationen des Anethols. München, 1898.

Cohn, Ludwig. Über die Einwirkung oxalsaurer Salze auf anorganische Sesquioxyde. Zur Kenntnis der Thonerdeoxalate. (Basel). Berlin, *n. d.* [1896].

Cohn, R. Ueber Metalldoppelrhodanide. Berlin, 1900.

Collin, Aug. Zach. Om några lerjordssalter. Lund, 1858.

Collin, M. H. Sur quelques synthèses effectuées au moyen des dérivés halogènes de l'orthoxylène. Nancy, 1898.

COLLISCHONN, FRIEDRICH. Ueber die Halogenadditionsprodukte der Propylchinolinhalogenüre und ein daraus gewonnenes Monobromchinolin. Freiburg-i.-B., 1886.

COLLMANN, FRIEDRICH. Neue Untersuchungen in der Pulegon-Reihe. (Göttingen). Hildesheim, 1901.

COLLOSENS, HEINRICH. Ueber die Einwirkung von Aldehyden und Ketonen auf Thiosemicarbazide und Thioharnstoff. Erlangen, 1899.

COLMAN, JAMES. Ueber die Anisenyltetrazotsäure. Königsberg in Pr., 1896.

CONRAD, HERMANN ERICH. Ueber optisch active Hexahydrophtalsäuren. Zürich, 1898.

CONSONNO, FORTUNATO. Étude sur quelques dérivés de la Napthaline. Genève, 1901.

CONZETTI, ALFR. Beiträge zur Kenntnis der Beziehungen zwischen Fluorescenz und chemischer Konstitution. Zürich, 1898.

COOPER, HERMAN CHARLES. I. Versuche über die Löslichkeit der Carvoxime. II. Zur Kenntnis der Benzhydrylamine. Heidelberg, 1899.

COOPS, G. H. Inwerking van zoutzuurgas op waterige formaldehydoplossing. Utrecht, 1897.

COOS, N. O. Bidrag till kännedom om Pyrodrufsyran. Lund, 1902.

CORTI, ARNOLD. Über Kondensationsprodukte des Cyanacetamids und des Cyanessigesters. (München). Zürich, 1899.

COTTE, J. De l'absorption de l'alcool perdu pendant les fermentations et du dosage chimique de l'alcool. Montpellier, 1897. 4to.

COUSIN, HENRI. Le pyrrol et ses dérivés. (Paris). Lons-le-Saunier, 1899.

CRAMER, GUSTAV. Ueber γ-Lactone von Phenolsäuren. Freiburg, (Schweiz), 1897.

CRAMER, WILLEM. Ueber den Einfluss des Grades der Milchentrahmung auf die Höhe der Butterausbeute. Leipzig, 1899.

Cramer, Willi. Ueber α-disubstituirte Biguanide und disubstituirte Guanamine. Berlin, 1900.

Croner, Fritz. Einwirkung von Formaldehyd auf Acetylaceton. Berlin, 1901.

Crotogino, Friedrich. Studien über Oxydationspotentiale. Giessen, 1900.

Crowther, Charles. Beiträge zur Kenntnis der isomeren Dibenzoylmethane. Leipzig, 1901.

Cuntze, Adolf. C [illegible] m-, [illegible] nd Wismuth-Cobaltcyanid und ihre Dopp [illegible] t [illegible] und den Cobaltidcyanalkalien. Berlin, 19 [illegible]

Curtius, Theodor. Diazoverbindungen der Fettreihe, eine neue Klasse von organischen Körpern, welche durch Einwirkung von salpetriger Säure auf Amidoverbindungen entstehen. (Erlangen). München, 1886.

Cuvier, Frédéric Jules. Contribution à l'étude toxicologique de l'acide sulfocyanique et de quelques sulfocyanates métalliques. Bordeaux, 1901.

Czamański, Witold. Kondensationen von o-Aldehydosäuren mit Acetessigester und mit einigen Ketonen. Freiburg, (Schweiz), 1901.

Czcrkis, M. Oxydationen von Amido- und Nitrophenolen. Basel, 1902.

Daecke, Selmar. Ueber das Tribromderivat des p-Oxybenzylalkohols und seine Umwandlungsprodukte. Heidelberg, 1899.

Dahmer, Georg. Ueber die Einwirkung von salpetriger Säure auf gebromte Phenole. Marburg, 1901.

Daimler, Carl. Ueber neue Synthesen mit Oxalsäure- und Malonsäureester. Strassburg, 1886.

Dallwig, Gustav. Ein Beitrag zur Kenntnis der Chinole. Marburg, 1901.

DAM, WILLEM VAN. Über die Einwirkung von Kaliumhypobromit in alkalischer Lösung auf die Amide der aromatischen Oxysäuren. (Basel). Haag, 1899.

DAMM, GEORG. Ueber das N-Propylpseudocermol und einige Derivate desselben. Rostock, 1897.

DAMMANN, KURT. Die Jodoso-, Jodo- und Jodiniumverbindungen des Para-Isoamyljodbenzols. Freiburg i. B., 1900.

DANNENBERG, WILHELM. Ueber die Oxydation der Methyl- und Aethylmesakonsäure mit Kaliumpermanganat. Strassburg i. E., 1902.

DANZIGER, ALEXANDER. Ueber einige substituirte Azofarbstoffe und ihre Spaltungsproducte und über die Derivate der ortho-substituirten tertiären Amine. (Bern). Karlsruhe, 1898.

DANZIGER, SIGISMUND. Ueber die N-Phosphine des Monomethylanilins sowie einige Oxyphosphazoverbindungen desselben. Rostock, 1897.

DARAPSKY, AUGUST JOSEPH. Ueber das Hydrazid der Schleimsäure. Heidelberg, 1899.

DARBISHIRE, FRANCIS VERNON. Über die Anlagerung von Bromwasserstoffsäure an feste Crotonsäure. Leipzig, 1899.

DARMSTAEDTER, ERNST. Ueber das Hydrazid der n-Tetramethylendicarbonsäure. (Adipinsäure). Heidelberg, 1902.

DASZEWSKI, ALEXANDER VON. Der Einfluss des Wassers und der Düngung auf die Zusammensetzung der Asche der Kartoffelpflanze. Göttingen, 1900.

DAUNER, HEINRICH. Ueber p-Tolyl-pseudo-azimido-chinolin. Freiburg-i. B., 1899.

DAVIDIS, ERNST. Die Hydrazide und Azide der Phtalsäuren. Kiel, 1896.

DAVIDSOHN, ISSER. Beiträge zur Chemie des Thoriums. Berlin, (1902).

DAVIS, LOUIS SHERMAN. Ueber die Alkaloide der Samen von Lupinus albus und Lupinus angustifolius. Marburg, 1896.

DEECKE, WALTHER. Die Chlorcitramalsäure und ihre Umsetzungsprodukte. Königsberg, 1900.

DEFACQZ, EDOUARD. Contributions à l'étude du tungstène et de ses composés. Paris, 1901.

DEGNER, OTTO. Über Isobutan, normales Butan und Propylen in flüssigen Zustand. Tübingen, 1895.

DEHNEL, ERICH: 1. Ueber α'-Phenyl-α-Stilbazol und α'-Phenyl-α-o-Stilbazol. 2. Einwirkung von Brom auf β-Picolin. Breslau, 1901.

DEICHLER, C. [illegible] und zur Darstellung der Wismutsupe[illegible]

DEINHARDT, ALEX. [illegible] sc[illegible]ltige Derivate der Ketosäuren. Greifswald, 190[illegible].

DEKKER, I. Ueber [illegible]eile des Cacao und ihre Bestimmung. A[illegible]

DE LAVAL, CARL GUST. PATR. Om wolfram och dess klorföreningar. (Upsala). Stockholm, 1872.

DELLSCHAFT, FRIEDRICH HERMANN. Ueber das Hydrazid und Azid der Palmitinsäure. Heidelberg, 1900.

DEMANGE, M. C. Étude de quelques dérivés du camphre droit et du camphre gauche. Nancy, 1898.

DEMOLIS, LOUIS. Conductibilités électriques des mélanges de chlorure de sodium et de soude caustique. Genève, 1901.

DEMPWOLFF, FRITZ. Über die Konstitution des Bz-Oxylepidons. Hannover, 1902.

DEMUTH, EDUARD. Über Ortho-Amidobenzaldoxime. (Zürich). Reichenberg, 1899.

DENCKS, EMIL. Zur Kenntnis der γ-Diketone. Erlangen, 1902.

DENSCH, ALFRED. 1. Ueber den Fluorenoxalester. 2. Ueber Einwirkung von Ameisenester auf Fluoren. Königsberg i. Pr., 1902.

ENT, FRANKLAND. Ueber Urethane und Derivate derselben. München, 1898.

ESCH, CECIL HENRY. Ueber farbige organische Ferri-Verbindungen. Leipzig, 1902.

ESCOMPS, A. Quelques combinaisons des acides chloranilique et bromanilique avec les hydrazines. Montpellier, 1900.

ESMOULIÈRE, ALBERT. De la présence normale d'acide salicylique dans diverses substances alimentaires d'origine végétale. Causes d'erreurs qui peuvent en résulter dans les expertises légales. Paris, 1902.

ESSNER, G. Beiträge zur Kenntnis der Arsenite des Bleis und Quecksilberoxyduls. Bern, 1897.

ESSOULAVY, EDOUARD. Recherches sur les acides bromphénylglyoxyldicarbonique et bromhémimellique et sur les acides sulfoniques de l'acénaphtène. Genève, 1898.

ESTRAZ, H. Ueber einige Producte der Einwirkung von Formaldehyde auf β-Acylhydroxylamine. Zürich, 1901.

AWE, C. Ueber Hexaminmetallsalze und Dirhodanatokobaltiake. Zürich, 1901.

ETERT, WILHELM. Ueber das 2, 5-Dimethyl-3-Aethylpyrazin, die Pyrazintricarbonsäure und die Constitution des Pyrazins. Kiel, 1896.

ETTWILLER, PAUL. Ueber m-Bromacetophenon, m-Brommandelsäure sowie einige Condensationsproducte des ersteren. Freiburg, (Schweiz), 1897.

EUSSEN, FRANZ JACOB PAUL ERNST. Ueber die Absorption der Uranylsalze. (Erlangen). Leipzig, 1898.

EVAS, ERNST WILLIAM. Zur Kenntnis des p-Chlorphenylhydroxylamins β-Phenylhydroxylamins und p-Bromphenylhydroxylamins. (Basel). Zürich, 1900.

IECKMANN, WALTER. Beiträge zur Kenntniss carbocyclischer Verbindungen. München, 1898.

Dieffenbach, Otto. Versuche zur Dissociation von Salzen der Ammoniakbasen in wässeriger Lösung. Giessen, 1898.

Diels, O. Zur Kenntniss der Cyanurverbindungen. Berlin, 1899.

Dietrich, Emil. Ueber zwei structuridentische Dimethyluracile und Aufklärung der Constitution der δ Methylharnsäure. (München). Hannover, 1899.

Dietsch[illegible]chard. Über einige Nitro- und Nitroso- Abkömmlinge a[illegible] Benzolreihe. Basel, 1900.

Dietzel, A[illegible]olf. [illegible] Acetessigester mit brenzweinsaurem Natrium. Stra[illegible]u[illegible] 1887.

Dieulafé, Paul. Les ea[illegible] des Pyrénées françaises. Toulouse, 1901.

Dilthey, Alfred. 1. Über Diazobenzidinverbindungen. 2. Zur Salzbildung des p-Nitrosodimethylanilins. (Würzburg). Bonn, 1900.

Dilthey, Walther. Beiträge zur Kenntnis der Indone. Erlangen, 1900.

Dimroth, Otto. Ueber direkte Einführung von Quecksilber in aromatische Verbindungen. Tübingen, 1900.

Dimroth, Otto. Versuche mit o- und p-Nitrobenzylchlorid. München, 1895.

Dinglinger, Paul. Einige Derivate des Benzophenons. Halle a. S., 1896.

Dittrich, Curt. Die Uranylsalze vom physikalischchemischen Standpunkte aus betrachtet. Leipzig, 1899.

Doctor, Guido. Ueber partielle Racemie. Neutrales Strychninracemat und seine Umwandlungstemperatur. Breslau, 1899.

Dörbecker, Wilhelm. Beiträge zur Kenntnis der Derivate des o-Phenylenoxamids. Marburg, 1899.

Doering, Otto. Die regulatorische Bildung von Diastase durch Pilze. Erlangen, 1900.

DÖRING, THEODOR. Der Einfluss des Kobalthydroxyds auf die Einwirkung der Halogene auf Kalilauge. Erlangen, 1902.

DÖRR, GUSTAV. Ueber Bromide der Cinnamylidenmalonsäure. München, 1901.

DOHRN, M. Kryoscopische Untersuchungen. Heidelberg, 1899.

DOLL, PAUL. Über die Einwirkung von Toluol auf Bernsteinsäureanhydrid und Succinylchlorid. Greifswald, 1900.

DOLLFUS, FRITZ EDMUND. Charakteristik von Pseudo-Säuren durch ihr Verhalten gegen Ammoniak. Würzburg, 1901.

DOMINIQUE, E. L. J. Nouvelle méthode d'analyse rapide des eaux potables. Application à l'essai des eaux d'Emmerin. Lille, 1897.

DONCHI, M. Ueber α-und β-Pyridoylessigester. Berlin, 1901.

DOPFER, OTTO. Zur Kenntniss der colloidalen Metalle. Erlangen, 1901.

DORANT, KAZIMIERZ. Ueber Condensation von Ortho-Nitroacetophenon mit Benzaldehyd. (Bern). Lemberg, 1898.

DORRANCE, JOHN THOMPSON. Ueber Condensationsprodukte des Cyclo-Methyl-Hexanons. Göttingen, 1897.

DRAGENDORFF, KURT. Über die Einwirkung von salpetriger Säure auf einige ringförmige sekundäre aromatische Basen. Rostock, 1898.

DRAWERT, A. Zur Kenntniss der Orthoamidoketone. Berlin, 1899.

DREDEN, FRIEDRICH VON. Ueber einige Derivate des Cetylalkohols und über Nitropalmitinsäure. Freiburg-i-B., 1885.

DRESCHER, BRUNO. Acylderivate von Indoxylsäure, Indoxyl und Indigweiss. Halle a. S., 1902.

DREVERHOFF, PAUL. Ueber die Einwirkung von Phosphorpentachlorid auf N-alkyl-α-Toluchinolone. Erlangen, 1898.

DREXLER, PAUL. Ueber γ-Picolinsäure und einige Derivate der $\alpha\alpha'$-Methylpyridincarbonsäure. Berlin, 1902.

Dreyfus, Camille. Erste Abhandlung: Über das Verhalten zwe basischer β-Oxysäuren beim Kochen mit Natronlauge. Zwei Abhandlung: Beiträge zur Kenntnis der Glutaconsäure. Base 1900.

Driessen, Johan Hendrik. Ueber den Phenylpropargulaldehy Kiel, 1898.

Drucker, K. Ueber zwei Fälle von Katalyse im inhomogenen Systeme. Leipzig, 1901.

Dubois, Hermann. Ueber einige Derivate des Caprolactons. Strassburg, 1886.

Ducru, Olivier. Recherches sur les arséniates ammoniacaux de cobalt et de nickel. Application au dosage de l'arsenic. Paris, 1900.

Dueck, Hans. Ueber Monobromäpfelsäure. Königsberg i. Pr., 1902.

Dünkelsbühler, Julius. Beitrag zur Kenntniss des Hydrindens. Berlin, 1901.

Dürselen, Heinrich. Trennung des Quecksilbers von Kupfer, Cadmium, Arsen, Antimon, Zinn, Eisen oder Aluminium im Bromstrome oder in einer ammoniakalischen Hydrazinhydratlösung. Heidelberg, 1899.

Duntze, Carl. Einwirkung der Alkalipersulfate auf Salicylsäure und Salicylsäurephenylester. (Lausanne). Hildesheim, 1898.

Duret, Albert. Étude de l'isodiphenylfluorindine. Recherches sur les produits de condensation de l'orthoaminodiphenylamine avec acide rhodizonique. Genève, 1897.

Dyckerhoff, Oskar. Beiträge zur Kenntniss des Orthocymols (Ortho-Methyl-Normalpropyl-Benzol). Freiburg-i.-B., 1886.

Dzimski, Otto. Ueber einige disubstituierte Amidoacetone. (Rostock). Marburg, 1898.

Eakle, Arthur S. Beiträge zur krystallographischen Kenntniss der überjodsauren und jodsauren Salze. (München). Leipzig. 1896.

EBERHARD, RUDOLF. Ueber sterische Einflüsse in Reaktionen der Nitraniline und Aminobenzoësäuren. Erlangen, 1900.

EBERS, ANTON. Beitrag zur Kenntnis der Disulfone. Greifswald, 1901.

EBERT, MAX. Halogenderivate der Stickstoffalkylaldoxime. Leipzig, 1902.

EBLER, ERICH. Ueber die Anwendbarkeit der Hydroxylamin- und Hydrazinsalze in der qualitativen Analyse. (Ein neuer Trennungsgang in d. Schwefelwasserstoffgruppe.) Heidelberg, 1902.

EBNER, ALBERT. Ueber das Oxydationsprodukt des Pseudocumenoltribromids. Heidelberg, 1899.

ECKERT, ALBERT. Ueber die Einwirkung von Aluminiumchlorid und Aether auf o-Anisidin, Toluol, o-Toluidin, o- und p-Kresol. Heidelberg, 1900.

ECKSTÄDT, ADOLF. Die Reaktion zwischen Salpetersäure und Jodwasserstoff. Leipzig, 1901.

ECKSTEIN, OSKAR. Recherches sur la sulfonation de la 1. 8 dinitronaphtaline et sur la transposition moléculaire de la 1. 5 dinitronaphtaline en nitronitrosonaphtol. Genève, 1900.

EGGERS, FRANZ. Zur Kenntnis der aromatischen Aldehyde. Heidelberg, 1900.

EGGERT, AUGUST. Ueber die α-Aethylidenglutarsäure. Basel, 1898.

EGLI, J. Studien zur Theorie der elektrolytischen Kupfergewinnungsmethoden. Zürich, 1902.

EHESTAEDT, PAUL. Abbau der Laurinsäure bis zur Caprinsäure. Freiburg-i.-B., 1886.

EHLERT, WALTER. Ueber Hydroxylaminderivate zweibasischer Säuren. Königsberg, 1901.

EHRET, HERMANN. Ueber die drei isomeren Methylpimelinsäuren und die zugehöhrigen Ringketone. München, 1897.

EHRING, CARL. Ueber den Farbstoff der Tomate (Lycopersicum esculentum). Ein Beitrag zur Kenntniss des Carotins. (München). Münster i. W., 1896.

EHRLICH, F. Zur Kenntniss des m-Cyanbenzylchlorids. Berlin, 1900.

EICHLER, JOSEF. Beiträge zur Kenntnis der Flavinduline. (Lausanne). Genève, 1901.

EICHW[illegible] [illegible]EINRICH W. Zur Constitution des Tribromphenolbroms [illegible]er die Einwirkung von Aethylnitrit auf trisubstituierte [illegible]enole. Mün[illegible]

EIDMANN, WILHELM. Ein [illegible]ur Erkenntnis des Verhaltens chemischer V[illegible]twässrigen Lösungen. Giessen, 1899.

EKELEY, JOHN BERNARD. Über die Einwirkung von Halogenschwefel auf Paratoluchinolin. Freiburg i. B., 1902.

EKMAN, FREDR. LAURENTZ. Om terebinsyrans salter, amider och eterarter. (Upsala). Stockholm, 1861.

EKSTRAND, ÅKE GERH. Retén och några dess derivater. Upsala, 1875.

ELIAS, JAMES FRIEDRICH. Ueber neue quantitative Metall-Trennungen. (Heidelberg). Berlin, 1900.

ELLENBERGER, ERNST. Untersuchungen über Derivate des p-Xylols und des p-Xylidins. Marburg, 1901.

ELTEN, PAUL. Beiträge zur Kenntniss colloidaler Metalle und Metalloxyde. Erlangen, 1901.

ELTZBACHER, J. Beiträge zur Elektrochemie der Wolframate. Berlin, 1899.

ELZANOWSKI, LEON. I. Über aromatische Guanamine. II. Über die Einwirkung von o-Aldehydsäuren auf m- und p-Phenylendiamin. Freiburg, (Schweiz), 1898.

ELZE, FRITZ. Zur Kenntniss der 1,5-Diketone. Jena, 1902.

EMILEWICZ, TADEUSZ. Synthese des 3-Oxyflavons. (Bern). Krakau, 1898.

Emmerich, Wilhelm. Über Chlor- und Bromderivate des p-Kresols. Marburg, 1900.

Emmerich, Wilhelm. Über einige Derivate des Propionaldehydacetals. (Berlin). Homburg v. d. H., 1902.

Emmerling, O. Die Zersetzung stickstofffreier organischer Substanzen durch Bakterien. Braunschweig, 1902.

Ende, Carl Leopold v. Ueber das Verhalten der Bleisalze in Lösungen. Göttingen, 1899.

Endres, Rudolf. Ueber Tetrahydrochinolinbenzkarbonsäuren. Erlangen, 1901.

Engelmann, Max. Beiträge zur Kenntnis der Einwirkung halogensubstituierter Fettsäureester auf die Natriumverbindungen einiger gesättigter und ungesättigter Malonsäureesterderivate. Leipzig, 1901.

Engels, Ewald. Ueber Wolframbronzen. Essen, 1896.

Engels, Otto. Ueber Anlagerung von Formaldehyd an α-γ-Lutidin und Spaltung des α-γ-Lupetidins in seine optischen Isomeren. Breslau, 1900.

Engler, Adalbert. Zur Kenntnis der isomeren Diazohydrate und Diazotate. Würzburg, 1900.

Enzenauer, Joseph. Über die Einwirkung aromatischer Basen auf die drei isomeren Dibrombrenzweinsäuren. Basel, 1900.

Ephraim, Fritz. Untersuchungen in der Bindongruppe. Berlin, 1899.

Eppenstein, Georg. Über Alkylarsenbenzoësäuren und einige Derivate. Rostock, 1902.

Epple, Hermann. Ueber Hydrate des Natriumcarbonats. Heidelberg, 1899.

Epstein, Stanislaus. Studien in der Indazolgruppe. Basel, 1896.

Erck, Adolf. Beiträge zur Kenntniss des Brasilins. Einwirkung von Cyansilber auf Monochloressigsäurechlorid. Göttingen, 1885.

RNST. Beitrag zur Kenntniss des Kaffeeöles und des
nthaltenen Furfuralkohols. Halle a. S., 1902.

UDOLF VON. Beiträge zur Kenntnis des as. o-Xylenol-
romids. Heidelberg, 1899.

Ueber Bromdiphensäuren und einige Derivate derselben.
Freiburg-i.-B., 1885.

RL. Über die Katalyse des Knallgases durch kolloidales
n. Leipzig, 1901.

RICHARD. Über die Einwirkung der Oxybenzaldehyde auf
enylmethylpyrazolon. (Bern). Berlin, 1899.

T, WALDEMAR. Über Monojodoso-, Monojodo- und Jodiniumverbindungen des s-Dijodnitrobenzols. Freiburg i. B., 1901.

T, W. Ueber Polymethylenimine und- Diimine. Berlin, 1900.

TLINGER, FRIEDRICH. Synthese der Hygrinsäure und der α-Pyrrolidincarbonsäure. München, 1902.

EVANS, THOMAS B. Ueber einige Halogenderivate des Chinolins. Erlangen, 1886.

EWERLÖF, FRITH. Några nya organiska svafvelföreningar. Lund, 1871.

EWERS, ERICH. Über thiosulfonsaure Diazosalze. (Basel). Leipzig, 1900.

EYME, ADOLPH. Ueber eine neue Additionsreaction der Carbodiimide. Berlin, 1901.

EYNERN, FRITZ VON. Condensation von Acetessigester mit bernsteinsäurem Natrium. Strassburg, 1887.

FABER, OSWALD VON. Untersuchungen über Oxycellulosen, sowie über die Polarisation der l-Arabinose bei verschiedenen Temperaturen und Concentrationen. Göttingen, 1899.

FABER, VICTOR. Über die Einwirkung von Phenoxylessigsäureaethylester auf Acetophenon. Rostock, 1900.

Faber, Willy. Über Kondensationen acidylierter Malonsäureester mit Benzylidenacetessigester. (Heidelberg). Magdeburg, 1900.

Facchinetti, Carlo. Recherches sur la stéréoisomérie des oximes de quinone. Genève, 1897.

Fackelmann, Paul. Beitrag zur Kenntnis der Diketone. Greifswald, 1901.

Fahrenhorst, Johannes. Beitrag zur Kenntnis der Disulfone. Greifswald, 1899.

Falk, E. Zur Kenntniss der Derivate des Guajacols. Berlin, 1900.

Fanto, Emil. Zur Kenntnis styrolartiger Verbindungen. (Heidelberg). Wien, 1899.

Farmer, Robert Crosbie. Über sogenannte Oxyazokörper sowie Chinonoxime und Ketoxime. Würzburg, 1899.

Favrel, G. Aldéhydes et produits aldéhydiques employés en pharmacie. Bordeaux, 1899.

Favrel, Georges. Contribution à l'étude de quelques hydrazones. (Paris). Nancy, 1901.

Feer, Adolf. Ueber einige Derivate des Carbostyrils und des 1-Oxypyridins. Ueber Methylhydrochinolin. München, 1886.

Fehlhaber, Franz. Ueber Homologe der Hippursäure und des Hippuroflavins. Kiel, 1899.

Feilitzen, Hjalmar. Ueber die Zusammensetzung und die Pentosane des Torfes, über Gährungsversuche mit Torf und über die angebliche Huminbildung aus Zucker mit Kaliumpermanganate. Göttingen, 1897.

Feilmann, Ernest. Beiträge zur Kenntnis des Metabrom-β-phenylhydroxylamins. Basel, 1898.

Feist, Karl. Ueber Condensationsprodukte des α-Picolins mit Aldehyden. Marburg, 1901.

Feist, Paul E. Ueber α-Naphtylmethylketon. Freiburg i. B., 1887.

Feith, Hermann. Ueber Esterbildung. (Heidelberg). Köln, 1897.

/. Ueber die Frage der isomorphen Vertretung von H n und Hydroxyl. (München). Leipzig, 1900.

ORG. Über die Bestandteile des Cascarillöles und Beiträge zu nntnis der Undecylensäuren. (Rostock). Berlin, 1900.

ER, RHARD GOTTFRIED. [I.] Über 2-Methylpyrrolidin. [II.] Über abnorm zusammengesetzte Golddoppelsalze organischer Basen. Würzburg, 1899.

[. J. Étude de quelques amalgames et des propriétés des metaux retirés de s. Nancy, 1899.

FERNAU, H. FR. Stu ion von Bleisalzen in wässerigen Lösungen. (gen). zig, 1898.

FERNBACHER, JOHANNES. le Einfluss der schwefligen Säure auf verschiedene Heferasse Saccharoselösung. Erlangen, 1901.

UBEL, ALBERT. Zur Kenntnis der Azimide. (Basel). Wiesbaden, 1900.

FEZER, OTTO. Ueber Imidazole. Erlangen, 1901.

FILATOFF, PORFIRIUS. Recherches sur deux isomères de la rosinduline. Genève, 1899.

FILS, WILLY. Über einige Derivate der Isonicotinsäure. (Basel). Leipzig, 1897.

FINCK, A. Die Iodometrie des Phosphors und seiner Säuren. Freiburg i. B., 1902.

FINCKH, CURT V. Über die Polymeren des Cumarons und seiner Homologen. Rostock, 1899.

FINDLAY, ALEXANDER. Theorie der fraktionierten Fällung von Neutralsalzen und ihre Anwendung in der analytischen Chemie. Leipzig, 1900.

FINK, ISIDOR. Ueber die Einwirkung von Brom auf Allylalkohol. Giessen, 1897.

FINKELSTEIN, ALEXIS. Über passives Eisen. (Göttingen). Leipzig, 1901.

ISCHER, FERDINAND. Zur Elektrolyse der Schwefelsäure mit Bleianoden. Bildung von Bleisulfat und Doppelsalzen sowie deren Herstellung auf rein chemischem Wege. Giessen, 1900.

ISCHER, FRANZ. Zur Elektrolyse der Schwefelsäure mit Bleianoden. Die Bildung von Bleidisulfat u. Doppelsalzen sowie deren Herstellung auf rein chemischem Weg. Giessen, 1899.

ISCHER, HUGO RICHARD. Addition des Bernsteinsäurediäthylesters an Zimmtsäureäthylester. Condensation von Aldehyden und Ketonen mit Bernsteinsäurediäthylester. Leipzig, 1901.

ISCHER, KARL VON. Ueber Derivate des Phenheptamethylens (Phencycloheptans). München, 1902.

ISCHER, OTTO. Zur Kenntnis des Paramethylchinolins. Freiburg i. B., 1896.

ISCHER, RICHARD. Beiträge zur Kenntnis der Papaveraceen-Alkaloide. Marburg, 1900.

ISCHER, WALDEMAR. Ueber Lösungen des Chromhydroxydes in Basen. Breslau, 1902.

ITTICA, F. Geschichte der Sulfitzellstoff-Fabrication. Leipzig, 1902.

ITTIG, RUDOLF. Beiträge zur Prüfung des additiven Verhaltens der Molekularwärme, speciell organischer Verbindungen. Göttingen, 1900.

LATOW, LEOPOLD. Über die Einwirkung von Halogenen auf Natriumdiketohydrindencarbonsäureester. Berlin, 1902.

LEISCHER, FRANZ. Digitoflavon, ein neuer Körper aus der Digitalis purpurea. Freiburg-i.-B., 1898.

LEMMING, ARTHUR. Über die Phosphinsäuren des Dibenzylmethans und des Oxymethylencamphers. Rostock, 1900.

LEMMING, PAUL. I. Zur Kenntniss der isomeren Nitro-α-Naphtylamine. II. Triphenylaethanon und Triphenylvinylalkohol. Kiel, 1898.

LIERINGA, J. De verhouding van oliezuur tot zwavel bij verhitting tusschen 100 en 140 graden. Utrecht, 1900.

FLODERUS, MANFRED MUSTAFA. De vigtigaste åsigterna om ozon, historisk-kritisk afhandling. Upsala, 1859.

FLÜRSCHEIM, BERNHARD. Beiträge zur Kenntnis der Kieselwolframsäuren. Heidelberg, 1901.

FOCKE, THEODORE MOSES. Ueber die thermische Leitfähigkeit verschiedener Gläser mit Rücksicht auf ihre chemische Zusammensetzung. (Göttingen). Leipzig, 1898.

FÖHRENBACH, WILLY. Über Condensationen von Aminen, Phenolen und Alkoholen mit lichlorbenzol. Basel, 1899.

FOERSTER, HANS. Ueber Stickst bkömmlinge der m-Chlorbenzoësäure. Heidelberg, 1901.

FONZES-DIACON, H. Polysaccharides. (Paris). Montpellier, 1899. 4to.

FONZES-DIACON, HENRI. Contribution à l'étude des séléniures métalliques. (Paris). Montpellier, 1901.

FORGAN, W. RUSSELL. Recherches sur quelques sulfones et sulfures aromatiques et sur une nouvelle préparation des dérivés orthonitrés du biphényle. Genève, 1901.

FORSBERG, AND. WILH. Om svafvelsyrlighetens inverkan på basiska nitrosoföreningar af anilin och toluidin. Helsingfors, 1887.

FOSSE, RICHARD. Contribution à l'étude du β binaphtol. Paris, 1899.

FOUCAR, GEORG. Über einige Semicarbazone der Fettreihe. München, 1898.

FOURNIER, H. Sur quelques alcools allylés secondaires. Besançon, 1898.

FOX, CHARLES JAMES JOHN. Über die Wechselwirkung zwischen Salzen und Schwefeldioxyd in wässriger Lösung. (Breslau). Leipzig, 1902.

FRÄNKEL, KURT. Zur Kenntniss der Dihydroisoindols (o-Xylyenimin). Berlin, 1899.

FRANCKE, ARTHUR. Über einige Condensationsproducte aromatischer Thionylamine mit secundären und tertiären Aminen, sowie über die Einwirkung von Thionylchlorid auf einige substituierte p-Phenylendiamine. Rostock, 1898.

FRANÇOIS, MAURICE. Contributions à l'étude des iodures de mercure et de leurs dérivés ammoniés. Paris, 1901.

FRANK, A. Ueber die Darstellung des Natrium- und Calciumsalzes der hydroschwefligen (unterschwefligen) Säure durch Electrolyse. Berlin, 1899.

FRANK, CHRISTIAN. Ueber Derivate der Hydrazinisobuttersäure. München, 1898.

FRANK, FRANZ. Ueber Derivate des Crotonaldehyds und den Methylglycerinaldehyd. Berlin, 1902.

FRANK, FRITZ. Abbau des Theobromins. (Basel). Berlin, 1897.

FRANK, KARL. Über die Zusammensetzung der Kuhmilch. (Leipzig). Mährisch-Schönberg, 1901.

FRANK, LEONHARD. Über m-p-a-Tribromchinolin sowie über o-m-p-a-Tetrabromchinolin. Freiburg i. B., 1900.

FRANK, W. Ueber die Zusammensetzung der Kuhmilch. Leipzig, 1901.

FRANKE, MAX. Zur Kenntnis der Morpholinderivate und eine Synthese des 2-Methyl-Naphto-Morpholins. Rostock, 1898.

FRANKENSTEIN, WILHELM. Beiträge zur Kenntnis der Aconsäure und der Itaconsäure. Königsberg, 1899.

FRANK-KAMENETZKY, ALBERT. Bromide des Isopentans. (Basel). Karlsruhe, 1899.

FRANZ, ARTHUR. [1.] Ueber eine Chlorgalactonsäure. [2.] Abbau des Isosaccharins. Berlin, 1902.

FRANZ, GEORG. Ueber Reduction des o-Aethoxyazobenzol und des o-Toluolazophenetols. Berlin, 1899.

FRANZEN, HARTWIG. Ueber 2, 4, 5 Trimethyldibenzylamin und 2, 4, 5 Trimethyldibenzylhydrazin. Heidelberg, 1901.

FREDENHAGEN, CARL. Zur Theorie der Oxydations- und Reduktionsketten. (Göttingen). Leipzig, 1902.

FREER, PAUL C. Ueber das Produkt der Einwirkung von Aethylenbromid auf Natracetessigester. Synthese von Hexamethylen Derivaten. München, 1887.

FREESE, HANS. Ueber Thiodiazoverbindungen. Würzburg, 1896.

FREI, ERNST. Ueber das Verhalten der Mangansalze an der Anode. Giessen, 1901.

FREI, JOHANNES. Beiträge zur Kenntnis der Aryl-azo-Acetaldoxime. Zürich, 1900.

FREIST, FRIEDRICH. Beiträge zur Kenntnis des Thujons, Isothujons und Thujamenthons. Kiel, 1900.

FREIST, GUSTAV. Ueber β-Isobutylisochinolin. Kiel, 1902.

FRENZEL, CARL. Ueber das Auftreten von Sauerstoff bei Reduktionsprocessen. Zur Synthese aromatischer Aldehyde. Heidelberg, 1899.

FRERICHS, GEORG. Ueber die Einwirkung von alkylsulfinsauren Salzen sowie von Kaliumsulfhydrat und Kaliumrhodanat auf Chloracetylurethane und Chloracetylharnstoffe. (Rostock). Berlin [1899].

FRESE, HANS. Beiträge zur Kenntniss der Pyridinreihe. Breslau, 1901.

FRESENIUS, FERDINAND. Ueber die Einwirkung von Ammoniak und Phenylhydrazin auf 2 Chlor-3,5 Dinitrobenzoësäure. Marburg, 1901.

FRESENIUS, LUDWIG. Ueber Tetrahydrocarvonisoxim, seine Constitution und seine Spaltungsproducte. Göttingen, 1901.

FRESENIUS, REMIGIUS. Über Abkömmlinge der Acetylsalicylsäure. (Bonn). Wiesbaden, 1902.

FREY, TOBIAS. Über einige Derivate des Phenanthrens. Zürich, 1900.

FRIEBEL, MAX PAUL GEORG. Über die Reduktion von Nitrobiphenyl und über substituierte Benzidine. Leipzig, 1899.

FRIEDBERGER, OTTO. Über die elektrochemische Reduktion einiger Chlornitrotoluole. Giessen, 1900.

FRIEDEMANN, WALTER HEINRICH. I. Zur Kenntnis der Tetrachlorterephtalsäure. II. Über die Einwirkung von Oximen auf Diazokörper. (Heidelberg). Münster i. W., 1899.

FRIEDLAENDER, HANS. Beiträge zur Kenntniss der Diphenylabkömmlinge. (Freiburg, Schweiz). Berlin, 1897.

FRIEDLÄNDER, J. Ueber merkwürdige Erscheinungen in der Umgebung des kritischen Punktes theilweise mischbarer Flüssigkeiten. Leipzig, 1901.

FRIEDLÄNDER, P. Fortschritte der Theerfarbenfabrikation und verwandter Industriezweige, an der Hand der systematisch geordneten und mit kritischen Anmerkungen versehenen Deutschen Reichspatente dargestellt. Theil IV: 1895–1896; V: 1897–1900. Berlin, 1901.

FRIEDLÄNDER, SIEGFRIED. Ueber die Bestimmung von Chlor, Brom und Iod durch Beobachtungen von Flammenspektren und über eine gesetzmässige Beziehung der beobachteten Haloidspektren. Berlin, 1900.

FRIEDMANN, ADOLF. Beiträge zur Kenntniss des Cystins. Berlin, 1901.

FRIEDMANN, WALTHER. Ueber die Oxyisoterebinsäure und das Isoheptodilacton. Strassburg i. E., 1902.

FRIEHMELT, PAUL. Ueber die Einwirkung von 1, 4 Dibrompentan auf primäre und sekundäre Amine. Breslau, 1899.

FRIES, ALFRED. Synthesen in der Pyridinreihe. Heidelberg, 1898.

FRIES, HAROLD H. Beitrag zur Kenntniss des Melamins und seiner Derivate. Berlin, 1887.

FRIES, KARL. Über Ketochloride und Methylenchinone der Stilbenreihe. Marburg, 1899.

FRILING, BRUNO. Ueber β-Benzylisochinolin. Kiel, 1899.

FRISCH, EUGEN. Beiträge zur Kenntniss der Kupfersalze organischer Carbonsäuren. Giessen, 1901.

Frischknecht, Otto. Sur quelques dérivés de l'acide anthranilique. Genève, 1900.

Fritzsche, Friedrich Martin. Über die Synthese zweier Tetraphenylcyklopentane durch Reduktion des Anhydrodibenzylketonbenzils. Leipzig, 1901.

Fritzweiler, Richard. Ueber die Methylaethylbernsteinsäuren. (Heidelberg). Neustadt a. Haardt, 1898.

Frobenius, Otto. Ueber Verbindungen aus der Aethyleniminreihe. Berlin, 1901.

Frobenius, Walther. Beit[illegible]r Kenntnis des γ-Amidochinolins. Freiburg i. B., 1896.

Fröbrich, Max. Die Salzverwaltung der Mark Brandenburg von 1415 bis 1688. Berlin, 1899.

Fröhlich, A. Ueber Propylendiaminverbindungen. Zürich, 1901.

Frölich, Carl. Halogenderivate des β-Naphtochinons und deren Verhalten gegen Alkali. Marburg, 1887.

Frölich, Julius. Ueber neue Condensationsproducte aus Rubeanwasserstoff, Aldehyden und Basen. Göttingen, 1899.

Fromme, Georg. Zur Kenntniss der β-Dichlorpropionsäure und über Bildung der Xeronsäure aus α-Dibrom- Normal- Buttersäure. (Rostock). Braunschweig, 1887.

Fuchs, Carl Siegfried. Über die Einwirkung von Chlor auf p-Amido- und p-Oxyzimmtsäure. Marburg, 1901.

Fuchs, Julius. Ueber Wasserstoffabspaltung aus Dihydrolutidindikarbonsäureester durch Erhitzen bei Gegenwart von Palladiummohr, sowie eine Umlagerung desselben Esters mittels konzentrierter Salzsäure. Heidelberg, 1902.

Fuchs, Willy. Ueber direkte Anlagerung von getrocknetem Brom an Kohlenhydrate. Heidelberg, 1902.

Fudickar, Friedrich Wilh. Die Erzeugungskosten der Milch. Leipzig, 1901.

Full, Camillus. Beiträge zur Synthese mehrbasischer Fettsäuren aus dem Malonsäureester. Würzburg, 1886.

FUNCKE, ROBERT. Ueber das Verhalten von Heptylaminseifen gegen Wasser. Heidelberg, 1900.

FUNK, VICTOR. Ueber Hemipinylhydroxylamin. Königsberg, 1900.

FURNÉE, A. L. C. Beiträge zur Kenntniss des Trimethylaminoactonchlorids. Marburg, 1896.

FURRER, F. Beitrag zur Kenntniss von Umwandlungsproducten amidirter Cumarine. Tübingen, 1902.

FUSSENEGGER, ERNST. Über Chinotoxin. (Basel). München, 1900.

FUSSENEGGER, ERWIN. Ueber Darstellung, Abkömmlinge und Verhalten des Cyanacetons. Kiel, 1901.

FUSSGÄNGER, VICTOR. Über einige neue α-Naphtylaminderivate und Chinonimidfarbstoffe. Basel, 1900.

GABLER, MAX. Ueber Abkömmlinge der Tetronsäure. Jena, 1900.

GAÇON, PIERRE. Action de l'organisme sur quelques dérivés sulfonés aromatiques. Lyon, 1902.

GADEBUSCH, GEORG. Beiträge zur Kenntniss des Chinolins. Freiburg i. B., 1886.

GÄRTNER, SIMON. Ueber die Einwirkung von Malonsäureester auf ungesättigte Ketone. Halle. a. S., 1898.

GAIL, GUSTAV. Ueber die Einwirkung von Pyridin auf Dinitrochlorbenzol. Marburg, 1899.

GALIMARD, JOSEPH. Action du brome sur la cinchonidine et sur deux bibromocinchonidines isomères α et β. Lyon, 1900.

GALIMARD, JOSEPH. Dosage des acides organiques par l'acide iodique en présence de l'acide sulfurique. Lyon, 1900.

GALLINEK, ALFRED. Ueber die Sulfurirung der Phenylhydrazine. Breslau, 1886.

GAMEL, GEORGES. Contribution à l'étude de l'élimination des composés oxygénés du phosphore, modifications qu'ils apportent dans les urines, transformations qu'ils subissent dans l'organisme. Montpellier, 1901.

GANSER, FRITZ. Ueber die Einwirkung von Phenyl-i-cyanat au organische Amidosäuren. (Basel). Erlangen, 1896.

GANSSER, AUGUST W. E. Über Gallaminsäurederivate. Zürich, 1900.

GARBEN, EDUARD. Ueber die Einwirkungsprodukte des Acetondicarbonsäureesters auf Anilin und auf m. Phenylendiamin. München, 1901.

GARFUNKL, HUGO. Über hydrierte Azine. Basel, 1900.

GARNIER, ROBERT. I. Kond en von o-Oxymethylbenzaldehyd mit Acetophenon, Aceton, o n-, p-Nitroacetophenon. II. Reductionsversuche mit o-Oxymethylbenzol-o-Nitroacetophenon. (Basel). Karlsruhe, 1898.

GARTENSCHLÄGER, FRITZ. Ueber einige Derivate der Pseudocumylphosphinsäure, sowie über die Einwirkung von Methylsenföl auf Hydrazinhydrat. (Rostock). Berlin, 1898.

GARTZEN, PAUL VON. Einwirkung von Phosgen auf acylierte aromatische Basen. (Erlangen). Berlin, 1898.

GAUMER, MAX. Die Gesetzmässigkeiten bei der elektrochemischen Reduction aromatischer Nitrokörper in schwach alkalischer Lösung. Giessen, 1901.

GEESE, WILHELM. Über die Oxydationsprodukte des Dichinoyltetroxims und einige Derivate des Tetraamidophenols. (Basel). Braunschweig, 1898.

GEIGER, PAUL. Beitrag zur Kenntnis der Ipoh-Pfeilgifte. Mit einem Anhang: Pharmakognostische Mitteilungen über einige zur Herstellung von Ipoh verwendete Giftpflanzen. (Zürich). Basel, 1901.

GEIPEL, GEORG. Krystallographisch-optische Studien an synthetisch hergestellten Verbindungen. Leipzig, 1902.

GEIPERT, RUDOLF. Über die Kondensation von Benzilsäure mit einigen einwertigen Phenolen. Freiburg, Schweiz, 1900.

GEISENHEIMER, HANS. Ueber Harnstoffabkömmlinge der Dioxobernsteinsäureester. Bonn, 1898.

ERSTEDT, NILS CHRIST. WILH. Bidrag till kännedomen af brandoljsyrade salter jemte öfversigt af de feta syrorna. Upsala, 1857.

BER, LEO VAN. Ueber secundäre Amidoacetale. (Erlangen). Ruhrort, 1900.

MBICKI, LUDWIG. Das Urantrichlorid und Verbindungen desselben. (Lausanne). Strassburg, 1898.

ENEQUAND, PAUL. Sur les jodométhylates de nicotine et leur oxydation. Sur quelques dérivés de la mésométhylphénanthridine. Genève, 1897.

GENTZEN, CURT. Zur Kenntnis des p-Oxychinolins und der p-Alkoxychinoline. Freiburg i. B., 1899.

GENZKEN, ULRICH. Ueber die drei isomeren Tritolylstibine und einige Derivaten derselben. (Freiburg i. B.). Leipzig, 1886.

ERET, L. Das proteolytische Enozym der Hefe. München, 1900.

ERILOWSKI, DIMITER. Ueber Diazoniumbenzolsulfonsäuren und die aus ihnen gebildeten stereoisomeren Diazotate. (Zürich). Würzburg, 1897.

RNECK, RUDOLF. Ueber die Bedeutung anorganischer Salze für die Entwicklung und den Bau der höheren Pflanzen. Göttingen, 1902.

NGROSS, LUDWIG. Über die Einwirkung von Cuminol auf Benzylidenanilin und von Benzaldehyd auf Cumylidenanilin bei Gegenwart von Cyankalium. (Basel). München, 1899.

ON, ARTHUR JOHN. Ueber einige isomere Acetylderivate der monosubstituirten aromatischen Thioharnstoffe, und die Bildung von Guanidinen aus denselben. Göttingen, 1901.

IG, EMIL. Kryoskopische Untersuchungen. Greifswald, 1901.

EKE, ADOLF. Ueber die Einwirkung von Monochloracetal auf α- und β-Naphtol sowie Darstellung zweier isomeren Naphtofurfurane. Rostock, 1897.

ERT, ADOLPH. Über ein Hydrocollidin und ein isomeres Coniin. Göttingen, 1900.

GITTELSOHN, KALLMAN. Ueber die Einwirkung von Alkaliortho- und Pyrophosphaten auf Ceriverbindungen. Berlin, 1899.

GLASER, RUDOLF. Die Aether des o-Oxybenzalazins. Heidelberg, 1900.

GLASS, GUSTAV. Beiträge zur Kenntnis der Glyoxylsäure. Halle a. S., 1901.

GLEY, R. Ueber die isomeren Mesityloxydoxime. Berlin, 1899.

GLIMM, ENGELHARDT. 1. Ueber die Constitution Formaldehydschwefligsaurer Salze. 2. Ueber die Affinitätsgrösse aromatischer Oxyaldehyde. [illegible] i. B., 1902.

GLOZ, ADOLF. Ueber N-Alkyl-Akridone und über eigentümliche Verbindungen von Basen und Phenolen mit Phenylacridinchlormethylat. Erlangen, 1899.

GLÜHMARON, PAUL. Beitrag zur Kenntniss der Triphosphorsäure und ihrer Salze. Berlin, 1899.

GMINDER, HEINRICH. Versuche zur Darstellung nitrierter Thioharnstoffe. Giessen, 1901.

GNEHM, ROBERT. Recherches sur des produits d'oxydation du chrysène. Genève, 1901.

GODFRIN, PAUL. Les chromates de bismuth. Nouveau procédé de dosage volumétrique du bismuth. Oxyiodures de bismuth. Présence du bismuth dans l'antimoine. Paris, 1902.

GOEBEL, CORNELIUS. Ueber die Produkte der Einwirkung von Hydrazin auf Phenylacetimidoaethylester. Rostock, 1897.

GOECKE, EMIL. Ueber den Genauigkeitsgrad elektroanalytischer Arbeitsmethoden, sowie über die katodische Abscheidung von Kohlenstoff, Schwefel und Phosphor. Bonn, 1900.

GÖRTE, OTTO. 1. Ueber das Vorkommen von Cholin und Betainen in Coffeïn und Theobromin enthaltenden Pflanzenteilen. 2. Ueber das Vorkommen von Cholin in einigen essbaren Pilzen. Erlangen, 1902.

GOESSEL, FRITZ. Beiträge zur Kenntnis der Chlorderivate des m-Kresols. Marburg, 1901.

Goldacker, Oswald. Ueber Stickstoffderivate einiger o-Chlorphosphine und o-Oxychlorphosphine. Rostock, 1897.

Goldberg, Irma. Recherches sur quelques dérivés des acides alcoyle-oxybenzoïques. Genève, 1897.

Goldberg, Paul. Ueber Ortho-Tolyldiketohydrinden und Derivate. Berlin, 1899.

Goldberg, Salomon. Zur Kenntnis der Benzazoxazine. (Zürich). Tilsit, 1901.

Goldberger, Anton von. Einwirkung von Alkali auf orthomethylierte Diazoverbindungen. Ueber die Nitro-a-m-Diazoxylolsäure. Zürich, 1897.

Goldhaber, J. Ueber die Wanderung der Ionen. Berlin, 1899.

Goldlust, Simon. Ueber die Wanderungsgeschwindigkeit der Jonen einiger mehrwertiger Elektrolyte in verdünnten wässerigen Lösungen. Berlin, 1902.

Goldmann, Felix. Kritische Studien über die Bestimmungsmethoden des Stärkemehls in Vegetabilien speciell Körnerfrüchten. Erlangen, 1887.

Goldmann, Max. Ueber einige α-Cyanbenzyl-Aniline und μ-Cyanazomethine. Berlin, 1902.

Goldschmidt, Franz. Physikalisch-chemische Studien an wässerigen Ammoniaklösungen. Breslau, 1901.

Goldschmidt, Max. 1. Über Umlagerung von Imidoäthern beim Erhitzen. 2. Verhalten des Äthoxyfumarsäureesters beim Erhitzen. Würzburg, 1901.

Goldschmidt, Oscar. Ueber α-Isobutylacthylenpyridin und α-Isobutylacthylpiperidin und seine Derivate. (Tübingen). Breslau, 1897.

Goldsmith, John Naish. Ueber Derivate des Methyl-1-phenyl-3-cyclohexenons-5. Heidelberg, 1898.

Goldstein, Karl. I. Beiträge zur Kenntnis der Kohlenoxydspaltung. II. Ueber den Oxallävulinsäureester und Synthesen mit Phenylmalonsäureester. Würzburg, 1895.

Gollnitz, Friedrich. Ein Beitrag zur Kenntnis der α-β-ungesättigten aromatischen Ketone. Berlin, 1902.

Gonnermann, M. Tabellen für den täglichen Gebrauch im Laboratorium der Zuckerfabriken bei der Untersuchung der Säfte Füllmassen, Zucker und Abläufe. Magdeburg, 1901.

Goose, Friedrich. Die Beziehungen der Benzolderivate zu den Verbindungen der Fettreihe. (Basel). Stuttgart, 1897.

Goret, Maurice. Étude chimique et physiologique de quelques albumens c [illegible] légumineuses. (Paris). Lons-le-Saunier, [illegible]

Górski, Theodor [illegible] nige Formylharnstoffderivate. Freiburg, Schweiz, [illegible]

Goslich, Carl. Synth [illegible] vate des Guanins. Berlin, 1902.

Gottlieb, Jacob. Zur [illegible] o-Propylbenzoësäure und ihrer Abkömmlinge. Be [illegible], 1899.

Gotsch, Fritz. Ueber einige Acetylenderivate, das α-Phenyl-αp Tolyl-Oxazol und einige Toluyl-Methylaether. Rostock, 1900.

Gottsche, Oscar. Über die Einwirkung von Phtalsäureanhydrid auf tricarballylsaures Natrium. Strassburg, 1900.

Gourevitz, Siméon. Recherches sur l'acide dichlorphtalique et quelques-uns de ses dérivés. Genève, 1900.

Goyon, Emile. Action du brome sur l'antipyrine. Lyon, 1902.

Grabfield, Joseph P. Ueber Derivate der Metanitroparamethoxyzimmtsäure. München, 1887.

Grabski, Felix von. Über Kondensationen von Chinaldin mit Cuminol und Paratolylaldehyd, ein Beitrag zur Kenntnis des Chinaldyl-α-Stilbazols. Breslau, 1902.

Gräfenhan, Wilhelm. Ueber die Aufspaltung des Naphtofuranringes. Rostock, 1900.

Graeger, Erdmann. Über Umbelliferon-β-carbonsäure. Tübingen, 1900.

Grälert, Karl Paul. Über das 1- und 2-Chlorcumaron und die Aufspaltung des Furanringes im Cumaronmolekül. Rostock, 1900.

Graemer, G. Ueber die Oxydationsprodukte des Chinolinaethylbromids. Freiburg-i. B., 1886.

Graeter, Adolf. Ueber Nitramine der Kohlensäure. München, 1898.

Graf, Gottfried. Über Additionsprodukte Schiffscher Basen und über Dimethylnaphtosafranin. Erlangen, 1902.

Graf, Paul. Die Bestandtheile des Kakaofettes. (Erlangen). Berlin, 1888.

Graf, Wilhelm. Ein Beitrag zur Kenntnis der aromatischen Aldehyde. Heidelberg, 1899.

Grandel, Gottfried. Ueber die Hydrazide und Azide der Tetramethylen-11-dicarbonsäure und der $\omega^1 \omega'_1$-Pentantetracarbonsäure. Heidelberg, 1900.

Grauer, Karl. Die Preisbewegung von Chemikalien seit dem Jahre 1861. Halle a. S., 1901.

Graul, Otto. Ueber isomere Salze aus Aethylnitrolsäure. Würzburg, 1898.

Gray, Thomas. Beiträge zur Kenntnis des Acetonylacetons. Jena, 1901.

Grebe, Emil. Über eine eigentümliche Klasse von Verbindungen der Platoso- und Platinioxalsäure. (Zürich). München, 1898.

Grégoire de Bellemont, M-E. Étude de quelques dérivés oxyméthéniques des éthers cyanacétiques. Nancy, 1900.

Greimer, Karl. Über giftig wirkende Alkaloide einiger Boragineen. Giessen, 1900.

Greiss, Max. Über einige Methyl- und Phenylalkyl-5-chlor-Pyrazole. Rostock, 1901.

Greittherr, Otto. Kritische Studien über die Bestimmung der Salpetrogen- und Salpeter-Säure. Erlangen, 1886.

GRESSLY, OTTO. Über die Elektrolyse halogensubstituierter organischer Säuren und die elektrolytische Darstellung von Halogenderivaten. Basel, 1901.

GREVEL, FRIEDRICH. Ueber Cinnamylacetessigester und einige Abkömmlinge desselben. Kiel, 1901.

GRIMM, JOSEF. Untersuchungen über das Vorkommen von Kohlenoxyd in Erdgasen und über die Kohlenoxyd-Spaltung von Ketonen und Estern bei niederen Temperaturen. (Basel). Leipzig, 1897.

GROB, JAKOB. Über Acetylami[illegible] und Hydrazone aliphatischer Nitroverbindungen. Zürich, 1899.

GRÖBE, HUGO. Über das Thioanisylphosphin und einige Derivate desselben. Rostock, 1899.

GROENEVELD, ANTON. Ueber Methyl-β-ketopentamethylencarbonsäureester. München, 1900.

GRÖNVIK, EM. IV. Om chlorkolsyreethers inwerkan på amidophenol. Helsingfors, 1875.

GROHMANN, ALFRED. Synthesen in der Urazolreihe. Erlangen, 1900.

GROHMANN, EDMUND. Über die Beziehungen des specifischen Gewichtes der Kuhmilch zu den sie bildenden Stoffen. (Leipzig). Merseburg, 1899.

GRONEBERG, MAX. Ueber Benzenyldioxytetrazotsäure. Königsberg i. Pr., 1896.

GRONOVER, ALBERT. Beiträge zur Kenntnis der Hexaalkyldiarsoniumverbindungen. (Heidelberg). Bonn, 1899.

GRONOW, WILLIAM. Ueber Dinitro-m-xylolsulfonsäure und einige ihrer Derivate. (Freiburg i. B.). Stralsund, 1887.

GROSCH, EDUARD. Ueber Raumisomerie bei den chlorsubstituierten Thiosemicarbaziden. Berlin, 1898.

GROSCHUFF, ERICH. Zur Stereochemie der Piperidinreihe. Verhalten der Vinyldiaceton- und Triacetonamingruppe gegen salpetrige Säure. Berlin, 1901.

Grosfillex, Emile. Recherches sur le tétrachlorophénol et sur quelques tétrachlorophénates. Lyon, 1901.

Gross, Friedrich. Ein Beitrag zur Kenntniss der Cyanhydrine von Aldehyden und Ketonen. Berlin, 1887.

Grothe, Walter. Ueber die Einwirkung von sulfinsauren Salzen, Kaliumsulfhydrat, Kaliumcyanid u. Kaliumrhodanid auf Chloracetylderivate aromatischer Amidokörper. (Rostock). Berlin, 1900.

Grotowsky, Hans. Ueber das Phenylacetylacetophenon und über Abkömmlinge des 1,4 Benzopyranols. Tübingen, 1902.

Grüger, Hermann. Ueber Sulfitokobaltammoniakverbindungen. (Zürich). Breslau, 1898.

Grün, Adolf. Über Triammin- und Äthylendiaminammin-Verbindungen. Zürich, 1901.

Grünbaum, Albert. Neue Synthese von Chinazolinderivaten. (Basel). Erlangen, *n. d.* [1898].

Grünhagen, Colmar. Ueber Condensationsproducte des Citrals und Citronellals mit Malonsäureester. (Heidelberg). Wiesbaden, 1898.

Grüters, Max. Über die Einwirkung von Brom auf Di-p-Oxyphenyl-Dimethyl-methan. Marburg, 1901.

Gruhl, Paul. Verbindungen des Arsen und Antimontrioxydes mit Halogeniden mehrwertiger Metalle. München, 1897.

Gruning, Herbert. Die Zersetzung schwerer Mineralöle beim Erhitzen. (Schweiz). Freiberg, 1898.

Gruschwitz, Walter. Ueber die Darstellung äthylierter Aniline durch Einwirkung von Aether und Aluminiumchlorid auf Anilin. Heidelberg, 1901.

Gruskiewicz, Józef. Ueber die Einwirkung der Alkohole auf Diazoverbindungen und ueber einige Versuche in der Indazolgruppe. Freiburg, (Schweiz), 1898.

Gubser, Alois. Über die Hydrate des Chromchlorids und Chrombromids. Zürich, 1900.

GÜNTHER, FRITZ CARL. Ueber Derivate des Dicyanhydrochinons. (München). Heidelberg, 1901.

GÜNTHER, HEINRICH. I. Ueber die Stereoisomerie des 2, 5-Diaminohexans. II. Zur Kenntniss der Diazoniumperhaloïde. (Würzburg). Hannover, 1897.

HER, OSCAR. Ueber Derivate des 1-Phenylnaphtalins. München, 1901.

GÜNTHER, PAUL. Ueber Halogenierung von Oxyanthrachinonmonosulfosäuren. (Münster). Berlin, 1901.

GUERBET, MARCEL. Composé romatiques. Paris, 1899.

GÜTTES, PETER. Ueber die E n und die Anilsäuren der unsymmetrischen Dimeth isäure. Bonn, 1901.

GUGGENHEIM, BERNARD. Contri ns à l'étude des fluorindines. Genève, 1900.

GUICHARD, FRIEDRICH. Ueber die Chlorphosphine der aliphatischen Reihe. Rostock, 1897.

GUICHARD, MARCEL. Recherches sur les oxydes, les sulfures et les iodüres de molybdène. Paris, 1900.

GUILLET, LÉON. Contributions à l'étude des alliages d'aluminium. Paris, 1902. 4to.

GULLY, EUGEN. Ueber die ε-Oxy-α-Aethyladipinsäure und die δε-Heptensäure. Basel, 1897.

GUNKEL, ERICH. Ueber einige Imidoderivate des Antipyrins. Rostock, 1902.

GUTBIER, ALEXANDER. Studien über das Tellur. (Erlangen). Leipzig, 1901.

GUTBIER, FELIX ALEXANDER. Beiträge zur Kenntnis der Isorosinduline. Erlangen, 1899.

GUTHRIE, TOM. Ueber einige neue Ketodilactone. Strassburg, 1898.

GUTMANN, AUGUST. I. Ueber den Abbau der Thiosulfate und einiger Polythionate zu Sulfiten durch reducierende Salze in alkalischer Lösung und über einige Monosulfooxyarsenate. II. Antimon-Alkalimetallsulfate. (München). Erlangen, 1897.

HAACK, RICHARD. Ueber o-Brom-ana-chlorchinolin und seine Derivate. Freiburg i. B., 1900.

HAAGER, ERNST. Ueber die Reduktion von Metaxylobenzalazin. Heidelberg, 1900.

HAARMANN, WILHELM. Ueber die Einwirkung von Hydroxylamin auf Akrolein, Crotonaldehyd' und Akrylsäureester. Berlin, 1901.

HAAS, PAUL. Zur Kenntnis einiger Derivate des Acenaphtens. Freiburg i. B., 1901.

HAASS, EBERHARD. Beitrag zur Kenntnis der Oxydationsverhältnisse verschiedener Chinolinderivate. Freiburg i. B., 1898.

HAASY, HERMANN VON. Über die Darstellung von amorphem Silicium, Siliciumsulfid, Siliciumchlorid und von Sulfosilikaten. (Rostock). Berlin, 1899.

HABEL, WILHELM. Sur la constitution des électrolytes dans l'acétone. Genève, 1899.

HABERKANT, WANDA. Recherches sur deux acides naphtopicriques. Genève, 1897.

HABERLAND, KARL REINHOLD. Die Löslichkeit von Salzhydraten bei Gegenwart von Nichtelectrolyten und gleichjonigen Electrolyten. (Heidelberg). Wiesbaden, 1898.

HACHUMIAN, CHRISTOPHOR. Studien .über c-Phenylpyrazole. Berlin, 1901.

HACKELOER-KÖBBINGHOFF, EBERHARD. Zur Kenntniss der Einwirkung von Ferrisalzen auf Iodide. Tübingen, 1896.

HADORFF, KARL. Über die Einwirkung von Salzsäure auf Phenylisocrotonsäure. Strassburg, 1901.

HAEBLER, MAX. Ueber einige Derivate des Meta-amido-anthrochinons. Freiburg-i.-B., 1886.

HAECKEL, SIEGFRIED. [1.] Ueber Abkömmlinge des Phenylnitroäthylens. [2.] Ueber eine Nitrierung von Phenylisocrotonester. München, 1901.

HÄHNLE, OTTO. Ein Beitrag zur Kenntnis des Mesitoltribromids. (Heidelberg). Ulm a. D., 1899.

HÄLSSIG, ARTHUR. Beiträge zur Kenntnis der Paratoluolsulfinsäure. (Rostock). Dresden, 1897.

HÄUSSERMANN, JOHANNES. Ueber die Produkte der Chlorwasserstoffentziehung aus Säurechloriden unter besonderer Berücksichtigung der Einwirkung tertiärer Basen. Tübingen, 1902.

HAFFNER, E. Ueber den Einfluss von Salzen auf die Säuregerinnung der Milch. Tübingen, 1901.

HAGEMANN, H. A. Ueber Volumenänderungen bei chemischen Processen der festen und flüssigen Elemente. Berlin, 1900.

HAGEN, MAX. Ueber das Lupanin, ein Alkaloid aus dem Samen der blauen Lupine (Lupinus angustifolius). Halle, 1885.

HAGENBACH, HANS. Die Reduktion des Pikramids. Basel, 1897.

HAGENBURGER, WILHELM. Ueber die Spaltbarkeit halogenirter Phenylbenzylaether. (Heidelberg). Oggersheim, 1900.

HAHN, CARL. Über die Estersäuren und die Anilsäuren der Phenylbernsteinsäure. Bonn, 1902.

HAHN, OTTO. Über Bromderivate des Isoeugenols. Marburg, 1901.

HAHN, RUDOLF. Über die bei der Farbstoffproduktion der Chromobakterien wirksamen Faktoren. (Rostock). Leipzig, 1898.

HAILER, EKKEHARD. Die Einwirkung von Diazoverbindungen auf Acyl-1.3-Ketosäureester. Tübingen, 1901.

HÅKÅNSSON, P. Om toluoldisulfosyror och några af deras derivater. Lund, 1873.

HALBE, ALOIS. Beiträge zur Kenntniss der Oxymethylenketone Kiel, 1898.

HALLAWAY, ROBERT RAILTON. Ueber das Hydrazid und Azid der m-Nitrohippursäure. Heidelberg, 1901.

HALLÉ, EMILE. Contribution à l'étude des eaux sulfureuses d'Enghien. Paris, 1900.

Haller, Robert. Einwirkung von Aldehyden auf das 3, 4-Dioxycumaronen. (Zürich). Linz, 1898.

Hallopeau, L. A. Sur quelques propriétés des paratungstates. Paris, 1899.

Halvorsen, Birger Fjeld. Über Hydrazonsäuren. (Freiburg i. Schweiz). Berlin, 1901.

Hamburger, J. Ueber Abkömmlinge des Æthyliden-Anilins. (Basel). Nördlingen, 1898.

Hampe, Wilhelm. Untersuchungen über das Pentabromid des as. m-Xylenols. (Heidelberg). Leipzig, 1899.

Hanke, Erwin. Ueber die Condensation von substituierten Acetessigestern mit Phenolen. Tübingen, 1900.

Hankel, Martin. Ueber Durochinon und Didurochinon. Kiel, 1896.

Hanne, Reinhold. Die Acidität der Kuhmilch. Leipzig, 1902.

Hanschke, Gottfried. Ueber Chinazolinverbindungen. Berlin, 1899.

Hansen, Willy. Universität Rostock. Ueber das Vorkommen gemischter Fettsäure-Glyceride im tierischen Fette. (Rostock). München, 1902.

Hantower, L. Zur Kenntniss der 1, 8-Dioxynaphtalin- 3, 6-disulfosäure. (Chromotropsäure). Berlin, 1900.

Hantzsch, A. Die Diazoverbindungen. Stuttgart, 1902.

Hapel, Manfred. Studien über einige Hydroxylaminderivate. Erlangen, 1898.

Harbeck, Ernst. I. Vergleichende Untersuchung über einige Methoden zur Bestimmung des Kohlenstoffs in Eisen. II. Quantitative Scheidung des Aethylens- und Benzoldampfes. III. Ueber die Einwirkung von Kohlenoxyd auf Platin und Palladium. (Bern). Andelfingen, 1897.

Harding, Everhart P. Ueber die Reduktion von 2 . 4 . 5 . Trimethylbenzaldazin. Heidelberg, 1901.

Hardt, Carl. Ueber die Einwirkung von Alkyljodiden auf die Kaliumsalze der Amidosäuren. Erlangen, 1899.

Hardt, Wilhelm. Spektroskopisches Verhalten und elektrische Leitfähigkeit des Kobaltchlorids in verschiedenen Lösungsmitteln. (Erlangen). Braunschweig, 1901.

Harth, Theodor. Ueber Quecksilber-Halogen-Doppelverbindungen. Würzburg, 1896.

Hartmann, Franz. Beiträge zur Kenntniss des Paracymylphenylketons. Freiburg-i. B., 1886.

Hartmann, Hilderich. Ueber Einwirkung des Trimethylamins und Pyridins auf einige Chlorhydrine. Marburg, 1896.

Hartmann, Ludwig. Beiträge zur Constitution der Ortho-Amidoazoverbindungen. Erlangen, 1899.

Hasenbäumer, Julius. Ueber aromatische Antimonverbindungen. Rostock, 1898.

Hauberrisser, Georg. Ueber das Verhalten des Halogenpyrazole. Jena, 1895.

Haueisen, Eugen. Ueber Azinscharlach und seine Derivate. Erlangen, 1898.

Haugwitz, Rudolf. Beiträge zur Kenntniss der Sulfaminsäuren. Königsberg in Pr., 1895.

Hauser, Max. Ueber Isocumalinsäure. (Tübingen). Strassburg, 1898.

Hauser, Otto. Beiträge zur Chemie des Wismuts. Über eine neue Trennung von Chlor und Jod. (München). Leipzig, 1902.

Hausmann, Arthur. I. Über das Vorkommen von Filixsäure und Aspidin in Farnkrautextrakten des Handels und den Nachweis einiger anderer krystallinischer Körper in verschiedenen Farnkräutern. II. Beiträge zur Kenntnis der Flavaspidsäure. Leipzig, 1899.

Hazard, Robert. Über gemischte Disulfone. Greifswald, 1902.

Heberlein, Edouard. Recherches sur quelques dérivés de l'acide orthonaphtoylbenzoïque. Genève, 1899.

HEBERLEIN, GEORG. Zur Kenntnis der unsymmetrischen (α) Phenylhydrazinderivate. (Basel). Genf, 1896.

HEBERLEIN, KUNO B. Beiträge zur Kenntnis des Tellur's. (Basel). Strassburg, 1898.

HECKEL, WILHELM. Über das Verhalten des Benzhydrols und Benzoins bei höheren Temperaturen. Heidelberg, 1902

HECKER, GEORG. Über einige Chloracetyl- und Brompropionylderivate aromatischer Amine. Rostock, 1900.

HEDENSTRÖM, AUGUST. Über die Einwirkung von Brom auf o-Kresol. Marburg, 1899.

HEFFTER, WERNER. Zur Kenntniss der β-Anthracenmonosulfosäure. (Würzburg). Berlin, 1895.

HEIBERG, THORWALD. Ueber einige Condensationsprodukte aus ortho-Diaminen und aromatischen ortho-Aldehydosäuren. Freiburg, (Schweiz), 1898.

HEIDE, KARL VON DER. Ueber Verbindungen der niederen Molybdänoxyde- und -sulfide mit Ammoniak und Cyankalium. München, 1897.

HEIDEPRIEM, WILHELM. Ueber die acetodiphosphorige Säure. München, 1901.

HEIDRICH, MARTIN. Aus d. chemischen Institut d. Universität Breslau. Ein Beitrag zur Charakterisierung aromatischer Amine, Amidosäuren und Pyridine. Breslau, 1901.

HEIL, H. Untersuchungen über das Rehs'sche Phenanthrol. Zürich, 1901.

HEIMANN, JULIUS. Beiträge zur Kenntnis der Ortho- und Metaphosphorsäure. Heidelberg, 1902.

HEINEMANN, FELIX. Untersuchungen über das Benzylisonitromethan und über den Dicyan-Benzoylessigester. Berlin, 1899.

HEINKE, JOHN LEATHART. Über die Einwirkung von Diazomethan auf einige Nitroverbindungen. (Tübingen). Strassburg, 1898.

Heinrichs, Carl. Ueber α-β-Dicarbonsäurederivate primärer Hydrazine. Erlangen, 1900.

Heinze, Max. Zur Kenntnis der Amidoazokörper und über neue Synthesen von Leukauraminen. (Rostock). Dresden, 1901.

Heizmann, Gustav. Über Derivate des Tetradecylacetylens. Heidelberg, 1899.

Helbig, Oscar Maximilian. Beiträge zur Kondensation aromatischer o-Aldehydophenoxyderivate. Rostock, 1899.

Helfenstein, Alois. Über die Anwendung des Faraday'schen Gesetzes bei der Elektrolyse geschmolzener Salze. (Zürich). Leipzig, 1900.

Helkenberg, Heinrich Wilhelm Ernst. Beiträge zur Bestimmung der Konstitution zweier Isomerer [!] der Crotonsäuren. Leipzig, 1901.

Hellström, Paul. Studier öfver naftalinderivater. (Upsala). Stockholm, 1890.

Hellwig, Carl. Über einige komplexe Silbersalze. (Basel). Göttingen, 1900.

Helmrich, Paul Arno. Über einige Derivate des β-Aethoxybutyronitrils und über die Verseifungsprodukte desselben mit wässeriger Kalilauge. Leipzig, 1901.

Helwig, Wilhelm. Beiträge zur Kenntnis der Azoniumverbindungen. (Basel). Mannheim, 1899.

Henkel, Fritz. Über einige Derivate des Monoäthyl-Acetal- und Diacetalamins. Rostock, 1899.

Henle, Franz Wilh. Über die Reaktionen der Methylengruppe im Fluoren und über die Reduktion von Äthylendoppelbindung mit Aluminiumamalgam. München, 1902.

Henle, Karl. Ueber Cholin- und Neurinartige Abkömmlinge einiger cyklischer Basen. (Göttingen). Hildesheim, 1899.

Henning, Fritz. Über radioaktive Substanzen. Halle a. S., 1901.

Hennings, Richard. Über schwefelhaltige cyclische Verbindungen. Freiburg i. B., 1902.

HENRICH, FERDINAND. Ueber die negative Natur ungesättigter Radikale. Erlangen, 1900.

HENSCHKE, HERMANN. Ueber die Bestandtheile der Scopoliawurzel. Ein Beitrag zur Kenntniss der mydriatisch wirkenden Alkaloide. (Freiburg i. B.) Halle a. S., 1887.

HENZE, MARTIN. Über die Produkte der Einwirkung von Benzylcyanid auf Aldehyde und auf einige ungesättigte Verbindungen. Leipzig, 1902.

HENZOG, H. Ueber die Oxydationswirkung des molecularen Sauerstoffs. Göttingen, 1901.

HERBRAND, AUGUST. Ueber die neue Darstellungsweise einiger Lactone der Fettreihe. (Lausanne). Bâle, 1898.

HERBST, CARL. Vergleichende Studien über einige aliphatische γ- und aromatische o-Aldehydosäuren. Freiburg, (Schweiz), 1901.

HERMES, ULRICH. Über die Synthese zweier isomerer Dimethylcumarone. Rostock, 1901.

HERMS, JOAQUIM. Ueber Condensation zwischen Acenaphtenchinon und Hydrazinhydrat und Derivate der entstehenden Verbindungen. Kiel, 1898.

HEROLD, WILLY. Untersuchungen über Abkömmlinge der Tetronsäure. Jena, 1899.

HERRMANN, CARL GUSTAV WILHELM. Über die geometrische Isomerie der beiden Dimethylaethylene, der Chloradditionsproducte derselben und der β-Monochlordimethylaethylene. Leipzig, 1901.

HERRMANN, HEINRICH. Studien in der Mentholreihe. Leipzig, 1901.

HERRMANN, PAUL. Ueber das Verhalten ungesättigter Verbindungen gegen Malonsäureester. Halle a. S., 1899.

HERRMANN, R. Ueber das fette Oel des Quittensamens. Erlangen, 1899.

HERWIG, WILHELM. Ueber aromatische Amidoketone und einige chlorierte Ketohydrochinoline. Rostock, 1901.

HERZ, WALTER. Beiträge zur Kenntniss des chemiscen Gleichgewichts. Gleichgewichtserscheinungen bei der Verteilung einer Säure zwischen Ammoniak und schwer löslichen Metallhydroxyden. Breslau, 1900.

HERZFELD, EDUARD. Beiträge zur Kenntnis des Aethylendiamins. (Basel). Berlin, 1896.

HERZOG, EDUARD. Beiträge zur Kenntnis der hochmolekularen ungesättigten Fettsäuren. Heidelberg, 1902.

HERZOG, FRANZ. Über Pikryl = o-p-Dinitrophenyl = und 2-Nitro-5-Chlorphenyl = 2-4-5-Trimethylphenylhydrazin und die daraus zu erhaltenden Azimido-und Aznitrosoverbindungen. Freiburg i. B., 1900.

HERZOG, HANS. Über die Oxydationswirkung des molekularen Sauerstoffs. (Göttingen). Hildesheim, 1901.

HESS, FRANZ. Ueber Paratolenyldioxytetrazolsäure. Königsberg i. Pr., 1896.

HESS, HEINRICH. Einige Derivate des Pseudocumylphenyl- und des Phenylparatolylchlorphosphins und Untersuchungen über das asymmetrische Phosphoratom. Rostock, 1899.

HESSE, JULIUS. Ueber die Einwirkung von Mono- und Dichloracetal auf Phenole. München, 1898.

HEUSER, GERHARD. Über die Einwirkung von Pyridin auf Dinitrochlorbenzol, Trinitrochlorbenzol und Dinitrochlorbenzoesäure. Marburg, 1901.

HEUSER, KARL. Hydrazo- und Azoverbindungen der Fettreihe. (München). Leipzig, 1896.

HEYER, FRIEDRICH. Untersuchungen über das hypothetische Silbersubchlorid. Leipzig, 1902.

HEYL, EUGEN. Über Ketone des o-, m- und p-Chlortoluols und des o- und p-Chlorphenetols. (Basel). Darmstadt, 1896.

HEYL, FRITZ. Ueber Wanderung von Methylgruppen in Benzol und Pyridinderivaten. Jena, 1901.

Heymann, Boleslaw. Ueber die Condensation von Paratohylaldehyd mit Acetophenon und den nitrierten Acetophenonen. Bern, 1898.

Heynemann, Ludwig Hans. Ueber das Hydrazid der Pyrazol-3, 4, 5-Tricarbonsäure. (Heidelberg). Hannover, 1901.

Heynsius, Daniel. Ueber Pyrrolbasen der Camphergruppe. Jena, 1901.

Hiby, Walther. Azoniumverbindungen aus Chloramidodiphenylamin. Heidelberg, 1900.

Hielscher, Robert. Über [!] α-Methylpyrrolin, n-Methyl-α-me thylpyrrolin und n-Methyl-α-methylpyrrolidin. (Rostock). Breslau, 1898.

Hiepe, E. Studien über die Senna. Bern, 1900.

Hilgendorff, Gustav. Über schwefelhaltige Derivate ungesättigter Ketone. Parchim, 1901.

Hilland, Willy. [I.] Über p-Nitrobenzylnitramin und Isonitramin sowie deren Äther. [II.] Über die Alkylierung des Hydroxylamins. Würzburg, 1898.

Hille, Hermann. Ueber das primäre und sekundäre symmetrische Hydrazid der Propionsäure und Valeriansäure. Heidelberg, 1900.

Hillkowitz, Gabriel. Beiträge zur Kenntnis des β-Brom-γ-Amidochinolins und des β-γ-Dibromchinolins. Bonn, 1899.

Hillringhaus, Albert. Beitrag zur Kenntniss des β-Naphtylcarbizins. Berlin, 1890.

Himmelbauer, Richard. Beiträge zur Kenntniss der Pyrazolonderivate. (Rostock). Leipzig, 1896.

Hinden, Fritz. Über m-Chloranilinsulfosäuren. (Bern). Basel, 1898.

Hinniger, Willy. Über einige Spaltungen des α, γ-Dibenzoyl-β-phenylglutarsäure Diäthylesters und die Darstellung des α, γ-Acetyl-benzoyl-β-phenylglutarsäurediäthylesters und über das Verhalten beider Ester gegen Hydrazine. Leipzig, 1901.

Hinrichsen, Willy. I. Ueber Condensationen aromatischer Dibromide durch metallisches Natrium. II. Derivate des o-Jodphenetols. (Heidelberg). Berlin, 1899.

Hinterskirch, Wilhelm. I. Eintritt von Chlor aus der Seitenkette in den Kern bei der Zersetzung von aromatischen Jodidchloriden. II. Derivate von Dimethoxydiphenyl. Heidelberg, 1899.

Hintz, E. Chemische und physikalisch-chemische Untersuchung des Rhenser Sprudels zu Rhens bei Coblentz. Unter Mitwirkung von L. Grünhut. Wiesbaden, 1902.

Hirsch, Hans. Ueber Condensationen halogenirter β-Naphtochinone mit Methylenderivaten. Berlin, 1900.

Hirsch, Paul. Untersuchungen an Bleiaccumulatoren mit verschieden dicker aktiver Schicht. Zürich, 1900.

Hirsch, Sylvain. Erste Abhandlung: Neue Versuche zur Synthese $\gamma\delta$-ungesättigter Säuren. Zweite Abhandlung: Zur Kenntnis von A. v. Baeyer's β-Lactonsäure aus der bromierten as-Dimethylbernsteinsäure. Basel, 1900.

Hirsch-Gereuth, Gabriel v. Untersuchung über die Löslichkeit einiger oxalsaurer Salze zwischen den Temperaturgrenzen 0°—100°. Lausanne, 1901.

Hirschweh, Hermann. Aldehydbildung in grünen Blättern bei verschiedener Belichtung. (Erlangen). Berlin, 1899.

Hischmann, Max. Beiträge zur Kenntnis des Aethylenphenylhydrazins. (Rostock). Basel, 1898.

Hjelt, Edv. Imm. Kamforonsyrans amider. Helsingfors, 1879.

Undersökningar öfver laktoner och laktonbildning. Helsingfors, 1882.

Hoedt, Walther. Beiträge zur Kenntnis der fettaromatischen Ketone. Heidelberg, 1901.

Höfer, Horst. Einfluss einer fettarmen und einer durch Kokosfett-Emulsion fettreich gemachten Nahrung auf die Zusammensetzung der Milch und die Beschaffenheit des Milchfettes beim Rinde. Beitrag zur Lösung d. Frage nach d. Quelle d. Milchfettes. (Leipzig). Dresden, 1902.

HÖGLUNG, OTTO MAGNUS. Om erbinjorden. Stockholm, 1872.

HOENIGSBERGER, FRITZ. Zur Kenntnis des Chrysens und seiner Oxydationsprodukte. Würzburg, 1899.

HÖPFNER, WILHELM. Beiträge zur Kenntnis der Combinationsprodukte des Acetondicarbonsäureesters mit Isodiazoverbindungen. Tübingen, 1901.

HOEPNER, CARL. Ueber die Einwirkung des Dicyans auf Malonsäurediaethylester. Berlin, 1900.

HÖPPNER, MAX. Über einige Derivate von China-Alkaloiden. München, 1898.

HOEREN, LUDWIG. Ueber Regelmässigkeiten bei der Krystallisation concentrierter Salzlösungen. Heidelberg, 1898.

HÖRGER, WILHELM. Ueber die Einwirkung von Phosphorpentachlorid auf N-Alkyl-α-Pyridone. Erlangen, 1899.

HOERING, PAUL. Ueber die Einwirkung von Natriumäthylat auf die Dibromide des Di- und Tribromanethols sowie die Dibromide des Isosafrols Mono- und Dibromosafrols. Rostock, 1897.

HOFACKER, ERWIN. Ueber die normale Dilävulinsäure (4-7- Dekandiondisäure). Tübingen, 1896.

HOFFMANN, ALFRED. Untersuchungen über Gleichgewichtszustände im System: Ferricyankalium und Jodkalium. Breslau, 1901.

HOFFMANN, AUGUST. Über den Anteil Lavoisier's an der Feststellung der das Wasser zusammensetzenden Gase. (Basel). Leipzig, 1896.

HOFFMANN, HEINRICH. Zur Kenntnis des Pinens und der Pinonsäure. Greifswald, 1902.

HOFFMANN, JULIUS. Zur Kenntnis des Dibromthymochinons und einiger seiner Derivate. Freiburg, (Schweiz), 1901.

HOFFMANN, PAUL. Über die Einwirkung gasförmiger salpetriger Säure auf einige sekundäre Amine. Rostock, 1898..

HOFFMANN, R. Ultramarin. (Gesammtbild der technischen Leistungen des Fabrikbetriebes bis zum Jahre 1885 und der wissenschaftlichen Erkenntniss der chemischen Constitution aller Ultramarinverbindungen bis heute.) Braunschweig, 1902. Ill.

Hoffmeister, H. Ueber Stromleitung in gemischten Salzlösungen. Berlin, 1899.

Hofmann, Friedrich. Ueber Cyanursäure und Cyamelid. (Würzburg). Heidelberg, 1901.

Hofman, Tamme Sebe. Ueber die Einwirkung vom Acidylhydraziden auf Säureazide in Acetonlösung und das Phenylcarbaminsäurehydrazid. Kiel, 1895.

Hofmann, Wilhelm. Ein Beitrag zur Kenntnis colloidaler Metallhydroxyde. Heidelberg, 1898.

Hofmeister, F. Die chemische Organisation der Zelle. Braunschweig, 1901.

Hogrebe, Hermann. I. Uber die Einwirkung der salzsauren Formimidoester auf einige Aldehyde, Ketone und Ketonsäureester. II. Ueber o-Benzoyl und o-Anisoyl-Derivate der Ketonoxalsäureester und der Oxalessigsäureester. Kiel, 1898.

Hohenemser, Wilhelm. Zur Stereochemie der Piperidinreihe. Berlin, 1901.

Holder, Max. Beiträge zur Kenntnis des meta-ana-Dichlor-para-Bromchinolins und seiner Derivate. (Freiburg i. B.) Breslau, 1900.

Holl, Alfred. Ueber das sogen. Sulfimid. Würzburg, 1902.

Hollaender, Ernst. Beiträge zur Kenntnis der α-Phenyl-β-naphtocinchoninsäure und der α-Methyl-β-naphtocinchoninsäure. Freiburg i. B., 1899.

Hollander, Charles. (1.) Synthese der Ecgoninsäure. (2.) Studien zur Synthese des Hygrins. München, 1902.

Hollerith, Otto. Ein Beitrag zur Kenntnis neuer Condensationsprodukte aus mehrwertigen Phenolen und alkylsubstituierten Acetessigestern. Tübingen, 1902.

Holm, Hermann. Beiträge zur Kenntnis des Cers. München, 1902.

Holtschmidt, Wilhelm. Über das Verhalten der Dibromide des Stilben und des Tolan. (Basel). Leipzig-Reudnitz, 1899.

TZ, CARL. Ueber Ditolylphtalid und einige Derivate desselben. Greifswald, 1896.

ZINGER, OTTO. Ueber einige Abkömmlinge des Ortho- Diamido-Stilben und über Ortho- Diamido-Dibenzyl. München, 1897.

ZMANN, HERMANN. Ueber die Isomerieerscheinung bei den Thiosemicarbaziden. Erlangen, 1902.

ZMANN, SIGMUND. Beiträge zur Trennung und Bestimmung der Glieder der gesättigten Fettsäurereihe. (München). Berlin, 1898.

IMEL, WOLDEMAR. Ueber die quantitative Trennung von Wolfram und Molybdän. (Giessen). Zürich, 1902.

LACHER, THEODOR VON. Ein Beitrag zur Synthese von Oxyaldehyden der Naphtalinreihe. Heidelberg, 1899.

N, ARTHUR. Zur Kenntnis der Ammoniumsalze und ihrer Umlagerungen. Würzburg, 1901.

NUNG, VICTOR. Über die Einwirkung von Einfach- und Zweifach-Chlorschwefel auf sulfinsaure und thiosulfonsaure Salze sowie auf Mercaptane. Rostock, 1898.

SBACH, HEINRICH. Ueber einige μ-p-Tolyl-α-Phenyl-Imidazole und deren Homologe. Rostock, 1901.

ELLS, VINCENT ALLEN. Ueber as- Jodoso- und Jodiniumverbindungen aus m-Xylol. Freiburg i. B., 1899.

ALECK, MAX. Die Einwirkung von Amidosulfonsäure auf Pseudocumidin und Piperidin. (Erlangen). Neuwied, 1901.

ER, LUDWIG. Pseudophenole aus Salicylaldehyd und Salicylsäure. Greifswald, 1902.

NER, OTTO. Zur Kenntnis der aromatischen Aldehyde. Freiburg i. B., 1902.

TLIN, ERNST. Beiträge zur Kenntniss des Papaverin's. Freiburg-i-B., 1886.

SBERG, ROBERT. Ueber die Einwirkung von Phosphorsulfochlorid auf die sekundären aliphatischen Amine. Rostock, 1896.

Hülsenbeck, Carl. Beiträge zur Kenntnis des Ortho- und Ana-Amido-Chinolins (Halogenalkylate und Verseifungen). Freiburg i. B., 1896.

Hüne, W. Ueber die quantitative Bestimmung der Oxalsäure im menschlichen Harn. Göttingen, 1901.

Hüthig, Emil Otto. Über die Produkte der Einwirkung von Natriumbenzoylessigester auf Phtalyldichlorür. Leipzig, 1900.

Hüttner, Erwin. Beiträge zur Kenntniss der Oxyde des Kobalts. Berlin, 1901.

Hütz, Rudolf. Versuche zur Darstellung von Abkömmlingen des Dimethylenchinons. (München). Jena, 1901.

Hugot, Charles. Recherches sur l'action du sodammonium et du potassammonium sur quelques métalloïdes. Paris, 1900.

Huldschinsky, Ernst. Eine neue Methode zur quantitativen Trennung des Nickels vom Kobalt und Zink sowie Studien über die Trennung des Kobalts vom Zink. Berlin, 1902.

Humnicki, Vincenz. I. Über das Schicksal des Cholesterins im tierischen Organismus. II. Über das Verhalten des Salols sowie des Distearylsolcylglycerids im Organismus. (Quantitative Untersuchungen.) Freiburg, (Schweiz), 1898.

Humphrey, Edith. Über die Bindungsstelle der Metalle in ihren Verbindungen und über Dinitritodiäthylendiaminkobaltisalze. Zürich, 1901.

Huth, Franz J. Ueber Steinkohlentheer und die Synthese eines Tetramethyldipyridyls. Breslau, 1899.

Hutzler, Rudolf. Über die Frage der Umwandlung von Buttersäure in Isobuttersäure. Heidelberg, 1898.

Hyde, E. Über p-Nitrophenylhydrazin. (Basel). Zürich, 1899.

Iacchia, Arturo. Über trisubstituirte Derivate des Naphtalins. Würzburg, 1901.

Iggena, Hermann. Beiträge zur Kenntniss der Amalgame der alkalischen Erden des Zinks und des Cadmiums. Göttingen, 1899.

DER, HILDRICH, Über Abkömmlinge des Chinolins und Isochinolins. Marburg, 1902.

E, AD. Om öfverjodsyrans mättningskapacitet. (Upsala). Örebro, 1869.

FELDT, JOH. GUST. HERM. NILSSON. Några nya substitutionsderivater af glykokoll. Lund, 1888.

G, ROBERT KARL. Oxydationsversuche mit überschwefelsaurem Ammonium. Giessen, 1898.

ER, RICHARD. Ueber einige unsymmetrische Alkylphenylhydrazine. Rostock, 1897.

ÖFER, HERMANN. Ueber die Einwirkung von Quecksilberoxydsalzen auf aromatische Verbindungen. Tübingen, 1901.

SS, ABRAHAM. I. Direkte Bestimmung des Randwinkels von wässrigen Salzlösungen in Capillarröhren aus verschiedenen Glassorten. II. Ueber die Ausbreitung von wässrigen Salzlösungen an der Oberfläche fester Körper unter Wasser. Heidelberg, 1899.

ERT, HENRI. Hydrazine et ses dérivés. (Paris). Montpellier, 1899.

ERWAHR, CLARA. Beiträge zur Löslichkeitbestimmung schwer löslicher Salze des Quecksilbers, Kupfers, Bleis, Cadmiums, und Zinks. Breslau, 1901.

ALD, O. Studien über die Zusammensetzung und die Eigenschaften von Phosphatgläsern. Ein Beitrag zur Kritik des Beinglases. Berlin, 1899.

NE, JAMES C. Über einige Derivate des Orthomethoxybenzaldehydes. Leipzig, 1901.

ERWOOD, PERCY CLAUDE CAMERON. Über die Salze der Violursäuregruppe. Würzburg, 1901.

LIK, L. VAN. Ueber den orientalischen und den amerikanischen Styrax (Liquidambar orientalis und L. styraciflua). Leiden, 1901.

ITZIG, HERRMANN. Ueber einige complexe Salze der Wein- und Äpfelsäure von hoher specifischer Drehung. (Erlangen). Berlin, 1899.

ITZKOWITSCH, ABRAHAM. Beiträge zur Kenntniss der Phosphate und Arseniate des Cadmiums. Berlin, 1900.

JABLONSKI, LUDWIG. Ueber des Diacetonhydroxylamin und stereoisomere aliphatische Ketoxime. Berlin, 1898.

JABLONSKI, SIEGFRIED. Ueber Chino-p = a-α-phenyl-chinolin-γ-karbonsäure nebst einem Anhang über Chino-p = a-α-methyl-chinolin-γ-karbonsäure. Freiburg i. B., 1900.

JABLONSKY, NIKOLAI. Das Kolostrum bei Kühen verschiedener Rassen. (Leipzig). Bautzen, 1897.

JABOIN, ANTONIN. Contribution à l'étude des phosphures alcalino-terreux. (Paris). Versailles, 1899.

JACOB, HUGO. Beiträge zur Elektrolyse der Thiosulfate. Berlin, 1902.

JACOB, PAUL. Les dérivés sulfonés du para-amido-métaoxybenzoate de méthyle. Paris, 1900.

JACOBI, ANDREAS. Über Derivate des Cycloheptans. (Tübingen). Strassburg, 1898.

JACOBI, CONSTANTIN. Beiträge zur Kenntnis der Pyrroline. Jena. 1901.

JACOBSOHN, WOLF. Beitrag zur Kenntniss der metazinnsauren Salze. Berlin, 1901.

JACOBY, HEINRICH. Über Phosphorvanadinmolybdate. (Bern). Leipzig, 1900.

JACOBY, PAUL. 1. Ueber die Einwirkung von o-Nitrobenzylchlorid auf Anthranilsäure. 2. Das Verhalten der Amidosulfonsäure gegen m-Chlor und m-Bromanilin. Erlangen, 1901.

JACOBY, RICHARD. Die Doppelnitrate des 4-werthigen Ceriums und des Thoriums. Berlin, 1901.

JACUNSKI, JOSEF. I. Untersuchung eines Erdöls aus den Korallenriffen des Roten Meeres (Gemsah-und Gebel-Zeit) und eines Asphalts von der Küste des Toten Meeres. II. Über Zersetzung von festen und flüssigen Kohlenwasserstoffen mittels Druck und Hitze. Freiburg, (Schweiz), 1898.

JAECKEL, BERNHARD. Ueber die Constitution des Apomorphins. Synthese von 4-Oxyphenanthren. Berlin, 1901.

JÄGER, ALBERT. Ueber die Löslichkeit von Fluoriden. Ein Beitrag zur Chemie der Halogene. Breslau, 1901.

JAEGER, RICHARD. Ueber die Einwirkung von Phosphorpentachlorid auf N-alkylierte Pyridone und Chinolone. (Erlangen). München, 1899.

JÄNECKE, ERNST. Ueber Amidodiäthylketon, Aminodiäthylcarbinol nebst einigen Derivaten. Berlin, 1898.

JAGELKI, WILHELM. Ueber Apokamphersäure, Apocamphansäure, Camphenilanaldehyd und Camphenilansäure. (Rostock). Bonn, 1897.

JAHN, CARL. Ergänzende Studien über den Dicarboxylglutarsäureester. ($\omega_2\,\omega_2'$-Propantetracarbonsäureester.) Leipzig, 1898.

JAHN, MAX. Die Jodoso-, Jodo- und Jodiniumverbindungen des o-Jod-m(5)-aethyltoluols. Freiburg i. B., 1901.

JAHN, STEPHAN. Zur Kenntnis des Camphers, Borneols und Menthols. München, 1902.

JAHRMARKT, MORITZ. Über das Isostilben und die Bromderivate des Stilbens. Leipzig, 1900.

JAMBON, LOUIS. Recherches sur le pentachlorophénol et quelques pentachlorophénates. Lyon, 1900.

JANDER, FRITZ. Ueber einige komplexe Merkurisalze. Breslau, 1902.

JANDRIER, EDMOND. Sur quelques dérivés du pipéronal. Lyon, 1900.

JANSEN, JOHANNES. Ueber das Hydrazid der Asparaginsäure und der p-Amidobenzoësäure. Heidelberg, 1899.

JAQUEROD, ADRIEN. Recherches sur les conductibilités électriques, les densités et les chaleurs spécifiques des solutions de chlorure de potassium et de potasse caustique. Genève, 1901.

JAROSS, KONRAD. Ueber die Einwirkung von Aldehyden und von Carbonylchlorid auf Diamine. Königliche Universität Breslau. Breslau, 1901.

JARRY, R. Recherches sur la dissociation de divers composés ammoniacaux au contact de l'eau. Paris, 1899.

JEDAMSKI, RUDOLF. Ueber o-Oxychlorphosphine und o-Chlorphosphine des Pseudocumenols. Rostock, 1897.

JEGOU, HENRI-DÉSIRÉ-MARIE. L'acidité urinaire, son dosage. Bordeaux, 1901.

JEHL, PAUL. Ueber die sechs stereoisomeren Phenylparaconsäuren. Strassburg i. E., 1901.

JELENSPERGER, PAUL. Nouvelles conditions de la décomposition des diazos pour la formation des dérivés indazoliques. Bâle, 1898.

JENICHEN, RUDOLF. Einwirkung von p-Toluolsulfinsäure auf einige aromatische Diazoverbindungen. (Rostock). Dresden, 1900.

JENNY, ALEXANDER. Ueber Isomerien bei Kobalttetramminen nebst einem Anhang: Versuche zur Darstellung von Metallammoniakverbindungen der sulfarsenigen Säure. München, 1902.

JERDAN, DAVID SMILES. I. Ueber die direkte Vereinigung des Kohlenstoffs mit Wasserstoff. II. Ueber einige Kondensationen mit Acetondicarbonsäureester. Heidelberg, 1898.

JERWITZ, WILLY. Ueber die Einwirkung von secundären Aminen auf Silicium-Zinn und Bleitetrachlorid. (Rostock). Leipzig, 1897.

JESSEL, HENRY R. Beitrag zur Kenntniss der Purinkörper. Berlin, 1900.

JIRMANN, FRIEDRICH. Ueber Darstellung hochmolekularer Kohlenwasserstoffe aus Bienenwachs. Heidelberg, 1899.

JOANIN, ALBERT. Essai de toxicologie comparée de quelques azols. Paris, 1899.

, ANDRÉ. Recherches sur l'oxydation en liqueur alcaline des sels de cobalt et de cérium. Paris, 1899.

HEM, EMIL. 1. Über die Darstellung von Chlorderivaten der Fettsäuren aus Amidosäuren. 2. Einwirkung von Methyl- und Aethylalcohol auf Diazoniumsalze. Würzburg, 1901.

GENSEN, JULIUS. Ueber die Einwirkung von Thionylchlorid auf einige Amine der Kampherreihe. Rostock, 1896.

IANNSSEN, FRIEDRICH. Über einige Mono- und Di-Chlorketone. Rostock, 1898.

IN, SEV. Om Cerium och dess föreningar. Stockholm, 1875.

LES. ADOLPH F. Beiträge zur Kenntniss der Manganate und Manganite. Breslau, 1887.

G, A. W. K. DE. Inwerking van brandig druivenzuur op brandig druivenzuurammonium. Utrecht, 1900.

DAN, HEINRICH. Ueber das Hydrazid und Azid der Phenylpropionsäure. (Heidelberg). Bonn, 1899.

DIS, EDUARD. Über die Elektrolyse wässriger Metallsalzlösungen mit besonderer Berücksichtigung der in der Galvanotechnik üblichen Arbeitsweisen. Halle a. S., 1901.

RE, FRIEDRICH. Synthese von 2, 3-Dimethylpyrazin. Kiel, 1897.

EPH, FELIX. Beiträge zur Kenntnis benzylierter Aniline und deren Sulfosäuren. (Würzburg). Berlin, 1895.

OPAIT, ARTHUR. Über die photosynthetische Assimilationsthätigkeit einiger chlorophyllfreien Chromatophoren. Basel, 1900.

CK, KARL. Beiträge zur Kenntnis der Blausäure abspaltenden Glycoside. Strassburg i. E., 1902.

NIAUX, ALCIDE. Actions des hydracides halogénés sur l'argent et réactions inverses. Lille, 1901.

VE, AD. Contribution à l'étude du tétraiodopyrrol. Paris, 1901.

TNER, FERENCZ. Beiträge zur chemischen Auffassung des Lösungsvorganges. (Breslau). Leipzig, 1901.

Junker, Hermann. Ueber Abkömmlinge der Tetronsäure und Bistetronsäure. Jena, 1901.

Juslin, Aug. Wilh. Om α-amidonormalvaleriansyra, α-amidoetylmetylättiksyra och α-oxynormalvaleriansyra. Helsingfors, 1883.

Just, Gerhard. Löslichkeit von Gasen in organischen Lösungsmitteln. Leipzig, 1901.

Kaehne, Richard. Die -N-Chlorarsine und -N-Arsine der secundären Amine und über das Verhalten der Jodalkyle gegen die sogen. Phosphorigsäureester oder -O-Phosphine. Rostock, 1898.

Kælbrandt, Friedrich. Ueber die Oxydation der Isobutyl-Itakonsäure, -Citrakonsäure und -Mesakonsäure mit Kaliumpermanganate. Strassburg, 1897.

Kaempfe, Otto. Gefärbte Flammen und ihre spektroskopische Beobachtung. Leipzig, 1901.

Kärger, Ludwig. Über eine isomere Pikrinsäure. (Basel). Wiesbaden, 1901.

Kahlert, Bruno. Beiträge zur Kenntnis der Aufspaltung des Cumarons und einiger seiner Derivate. Rostock, 1902.

Kahnemann, Emil. Ueber N-Oxychlorphosphine des Piperidins und einige Oxyphosphazoverbindungen. Rostock, 1897.

Kaiser, Friedrich. Zur Kenntniss der Reduction α-β ungesättigter Ketone und Synthese eines Bisterpens. Ueber das Verhalten von Semicarbazid gegen Mesityloxyd. Berlin, 1899.

Kalb, Max. Über Pseudo-Ammoniumbasen. Würzburg, 1899.

Kalkmann, D. Ueber die Anlagerung von Säuren an Sauerstoffkörper und über Chromharnstoffverbindung. Zürich, 1902.

Kallir, Jacob, Ueber den Krystallwassergehalt gelöster Kobaltsalze. Leipzig, 1887.

Kammann, Otto. Ueber Einwirkung des Chlors auf den m-Oxybenzaldehyd. Kiel, 1902.

Kamphausen, Wilhelm. Untersuchungen über Diphenylisodithiobiazolon. Erlangen, 1900.

ANN, ALBERT. Ueber einige Derivate des Dimethyl-ortto-toluidins. (Basel). Wien, 1898.

APELUSZ, ALEXANDER. Ueber o-a-Dimethyl-p-aethyl-chinolin und seine Derivate, sowie über p-Dimethyl-2-aethyl-5-jodbenzol und einige seiner Derivate. (Freiburg i. B.). Berlin, 1900.

APLAN, MORDUCH LEISER. Beiträge zur Kenntnis der aliphatischen Ketoxime. Königsberg i. Pr., 1902.

APPELLER, GEORG. Ueber die Addition von Fluorwasserstoff an Derivate der Schwefelsäure. (München). Leipzig, 1901.

ARMEL, HERMANN. Ueber die Einwirkung von Phosphorsäure und Alkaliphosphaten auf Cadmiumsalze. Berlin, 1901.

ASAI, SHINZO. Die wasserhaltigen Aluminiumsilikate. München, 1896.

ASSNER, OSKAR. Beiträge zur Kenntniss der Papaverinhalogenalkylate. Freiburg i. B., 1895.

ASTNER, RICHARD. Ueber Hydrazimethanderivate aus Orthodiketonen. Heidelberg, 1900.

ATZ, ERNST. Über das ætherische Öl der Pappelknospen. Basel, 1899.

ATZENELLENBOGEN, ABRAHAM. Ueber Para-Tolylpyridazin und einige Derivate. Berlin, 1900.

AUFFMANN, OTTO. Zur Kenntnis einiger neuer Thoriumsalze. Rostock, 1899.

AUSCH, OSCAR. Beiträge zur Kenntnis des p-Amidobenzaldehyds. (Rostock). Dresden, 1897.

AUTZ, AD. HEINRICH. Ueber gechlorte Derivate des Orthoxylols. Freiburg-i.-B., 1885.

EDESDY, ERICH. Beiträge zur Kenntnis der 1,3-Diketonsäure- und 1,3 Ketonsäure-Ester. Kiel, 1900.

RIL, HERMANN. Ueber eine neue Bildungsweise von aliphatischen Diaminen und über einige Derivate des Propylen-, und Trimethylendiamins. Freiburg, (Schweiz), 1898.

KEIL, J. A. Beiträge zur Experimentalchemie. Wien, 1901.

KELLER, BRUNO ARTHUR. Über eine Synthese des Pentaphenylcyklopentans. Leipzig, 1900.

KELLER, ERNST. Über das 4'-Oxy-a Naphtoflavon und das 3'-Methoxy-4'-Aethoxy-a Napthoflavon. Bern, 1899.

KELLER, FERDINAND. Recherches sur quelques imines da la benzophénone. Genève, 1900.

KELLER, HANS. Dynamische Untersuchungen über die Bildung von Azofarbstoffen. Heidelberg, 1902.

KEPPELER, GUSTAV. Die Bildung der Oxyazofarbstoffe. (Heidelberg). Heilbronn a. N., [1900].

KEREZ, CONRAD. Ueber die Einwirkung von Halogenverbindungen des Aluminiums auf halogensubstituirte Kohlenwasserstoffe. Tübingen, 1885.

KERKHOF, WILHELM. Über die Einwirkung von Phosphorpentachlorid auf Salol. Rostock, 1899.

KERN, FRIEDRICH. Über einige Derivate der p-Toluyl-o-benzoesäure. Greifswald, 1901.

KERSTEN, JULIUS. Über einige Condensationen von Aldehyden mit Hydrocotarnin. (Rostock). Berlin, 1899.

KESSELKAUL, LUDWIG. Über das 3,4-Dioxybenzalcumaranon. (Bern). Aachen, 1900.

KESTNER, NICOLAI. Ueber Phenylisobuttersäure. Göttingen, 1899.

KIESERITZKY, R. Elektrotechnische Constitutionsbestimmungen. Leipzig, 1899.

KIESEWETTER, PAUL. Qualitative Mineralanalysen. (Erlangen). München, 1889.

KILP, AUGUST. Ueber p-Tolhydroxamsäure-Aethyl-und Methyl-Ester. Königsberg i. Pr., 1897.

KIPPING, F. S. Ueber einige Derivate des Meta- und Paraxylols sowie Versuche zur Darstellung von isomeren Naphtalinderivaten. München, 1887.

KIRCHHOF, BRUNO. Beiträge zur Kenntniss der Pulegonsäure. (Göttingen). Hannover, 1897.

KIRMSSE, E. Beiträge zur chemischen und pharmaceutischen Kenntniss der Pasta Guarana. Strassburg, 1897.

KIRNBERGER, CARL. Über die Anlagerung von Blausäure an β-Phenyliminocarbonsäureester. Bonn, 1902.

KISSEL, FRITZ. Über die Einwirkung von α-Brompropionacetal auf einige Phenole und die Synthese einiger homologen α-methylierten Cumarone. Rostock, 1901.

KISSEL, HERMANN. I. Über Reaktionsfähigkeit und Salzbildung von Nitrokörpern. II. Beiträge zur Chemie des Quecksilbers. Würzburg, 1899.

KLAGES, AUGUST. Ueber den Einfluss von Alkylgruppen auf die Reaktionsfähigkeit substituirter Benzole. Heidelberg, 1900.

KLAGES, LUDWIG. Versuche zu einer Synthese des Menthons. München, 1901.

KLAPPERT, ERICH. Über Ketochloride und Ketobromide aus p- und m-Oxydiphenylamin. Marburg, 1901.

KLAVENESS, J. Studien über die Natal- und die Uganda-Aloë. Bern, 1901.

KLEIN, AUGUST. Ueber Sulfosäuren und Oxyderivate des Phenanthrens. Berlin, 1902.

KLEIN, HERMANN. Ueber Pikryl-, o-p-Dinitrophenyl-as-m-Xylyl-Hydrazin, und Derivate derselben. (Bern). Freiburg i. B., 1896.

KLEMM, WILHELM. Ueber das α-Pyridylmercaptan. Berlin, 1900.

KLENK, KARL. Untersuchungen über Bromderivate des Safrols. Heidelberg, 1901.

KLENKER, OTTO. Studien über Antimonpentasulfid. (Erlangen). Leipzig, 1899.

KLIEN, ALFRED RUDOLPH. Über die Bindefestigkeit der negativen Reste in den Kobalt-, Chrom- und Platinammoniaken. Über eine neue Nitritorhodanatotetraminkobalt-Reihe. Zürich, 1899.

KLIMMER, K. Ueber die Farbstoffe der Capriblau- und Phenocyaningruppe; ein Beitrag zur Kenntnis der Oxazinfarbstoffe. Dresden, 1901.

KLIMMER, MARTIN. Ist Zucker ein normaler Bestandteil des Harnes unserer Haussäugetiere? und zwei neue klinische Methoden der quantitativen Zuckerbestimmung im Harn. (Bern). Jena, 1898.

KLITZSCH, PAUL. Zur Kenntnis des Chinolins. (Erlangen). Rostock, 1899.

KLOPFER, VOLKMAR. Über die Kondensationen von Chinonen mit sekundären aromatischen Alkoholen. (Rostock). Dresden, 1899.

KLOSE, KARL. Ueber die Einwirkung von Piperidin auf Dichloracetal und Methylenchlorid. Rostock, 1897.

KLÜNDER, THEODOR. Ueber einige Derivate des Diacetalamins. Rostock, 1902.

KLÜNDER, UDO. Ueber einige substituierte Phenacylverbindungen und die Einwirkung von Chloracetylchlorid auf Acetdiphenylamin und Acettetrahydrochinolin. Rostock, 1900.

KLUT, H. Beiträge zur Kenntniss substituirter Thiodicyandiame. Basel, 1902.

KNAPP, THEOPHIL. Studien aus der Naphtalinreihe. Basel, 1898.

KNELL, C. WILHELM. (1.) Ueber Diphenylhexatriën-γ-carbonsäure und ihre Derivate. (2.) Einige Condensationsreactionen des Phenylcrotonlaktons. München, 1902.

KNICK, REINHOLD. Ueber die Condensation von p-Nitrobenzaldehyd mit α-Picolin und αγ-Lutidin. Breslau, 1902.

KNOCH, FRANKLIN EMIL. Ueber Cyclohexanone. Göttingen, 1897.

KNOESEL, CHRISTIAN. Die Einwirkung einiger Antiseptika (Calciumhydroxyd, Natriumarsenit und Phenol) auf alkoholische Gärung. (Erlangen). Jena, 1902.

KNOOR, EMIL. Ueber (4) Nitro-M-Xylol (2) Sulfonsäure. Freiburg i. B., 1887.

KNUEPPEL, LUDWIG CHR. Eine neue Synthese des Chinolins und seiner Derivate nebst Beiträgen zur Kenntnis der Chinolinderivate. Rostock, 1899.

KOBYLINSKI, SIGISMUND. Zur Kenntnis des o-Amidobenzaldehyds. Rostock, 1901.

KOCH, ADOLF. Über die elektrolytische Reduktion von Nitrophtalsäuren u. Nitrodiphenylen. Giessen, 1900.

KOCH, ERNST. Beiträge zur Einführung der Nitrogruppe mittels salpetriger Säure. (Basel). Berlin, 1897.

KOCH, LUDWIG. Untersuchungen über die bisher für Oel oder Phloroglucin gehaltenen Inhaltskörper der Fucaceen. Rostock, 1896.

KOCH, REINHARD. Die Condensation von Salicylsäure mit Formaldehyd und Chloral. Giessen, 1899.

KOEBNER, MAX. Zur Kenntnis der aromatischen Aldehyde. (Heidelberg). Berlin, 1899.

KOECH, PAUL. Ueber die Umlagerung der Isodialursäure zu Dialursäure. Rostock, 1900.

KŒHLER, ALBERT. Recherches sur les chaleurs de formation et de décomposition de quelques dérivés trinitrés de la série aromatique. Paris, 1901.

KÖHLER, EDWIN. Über einige neue Derivate des Triphenylphosphins. Rostock, 1900.

KÖHLER, ROBERT. Untersuchungen über die α-Phenyl-p-Methylcinchoninsäure sowie α-Methyl-p-Methylcinchoninsäure und deren Derivate. Basel, 1898.

KOELICHEN, KARL. Die chemische Dynamik der Acetonkondensation. Leipzig, 1900.

KÖLLE, GOTTHOLD. Beiträge zur Kenntnis des Cers. Zürich, 1898.

KÖLLE, MARTIN. Beiträge zur Kenntnis des Hämatins und seiner Spaltungsprodukte. Tübingen, 1898.

KÖNIG, ALFRED. Synthese von Indazolonen und Triazinen. Berlin, 1899.

KOENIG, GEORG. Die Oxydationsproducte der Mercaptursäuren. (Erlangen). Freiburg i. B., 1887.

KOENIG, JULIUS. Ueber das Mucodilacton und die Mucolactonsäure. Strassburg i. E., 1901.

KÖNIG, WILHELM. Über das Dilacton der Pulegonmalonsäure. Halle a. S., 1900.

KÖNIG, WILHELM. Ueber die Einwirkung von aromatischen Senfölen auf Phenole und Naphtole. Heidelberg, 1901.

KÖNIG, WILHELM. Zur Kenntniss der Acetylderivate aromatischer Thioharnstoffe. (Göttingen). Fulda, 1900.

KÖPCKE, PAULA. Zur Kenntniss des Para-Brom-Phenylhydroxylamins. (Bern). Dresden, 1899.

KÖPP, ARTHUR. Ueber Carvonpinakon und Fenchonpinakon. (Erlangen). Leipzig, 1899.

KOEPPEN, ALBERT. Ueber das Nonodilacton. Strassburg, 1902.

KÖPPEN, OTTO. I. Über fluorierte saure Jodate und über ein fluoriertes Cäsiumperjodat. II. Über Doppelsalze vom Ferrifluorid bezw. Aluminiumfluorid mit Fluoriden zweiwertiger Metalle. (München). Leipzig, 1899.

KÖRBER, HEINRICH. Ueber intramolekulare Wanderung von Atomgruppen. Würzburg, 1902.

KÖSTER, RICHARD. Kritische und experimentelle Beiträge zur Kenntnis der Gallenfarbstoffe. Rostock, 1901.

KÖTHNER, PAUL. Das reine Tellur und sein Atomgewicht. Halle a. S., 1901.

KOETTNITZ, CURT. Über die Bildung von Indigo aus Anthranilsäurederivaten. Halle a. S., 1901.

KOHAN, DAVID. Recherches synthétiques dans la série du carbazol. Genève, 1899.

KOHEN, WILHELM. Quantitative Trennungen mit Wasserstoffsuperoxyd, Persulfat und Hydroxylamin. Heidelberg, 1902.

Kohlschütter, Johannes Volkmar. Zur Konstitution anorganischer Verbindungen. München, 1902.

Kohlschütter, Volkmar. Unorganische Hydroxylaminverbindungen. München, 1899.

Kohn, Hugo. Beitrag zum Abbau von Zuckern durch Oxydation. (Über Methyltetrose und l-Threose.) Berlin, 1902.

Kok, Bernhard Richard. Ueber Jodoso-, Jodo und Jodiniumverbindungen des 4-Nitro-2-Jodtoluols. Freiburg i. B., 1901.

Kolb, Heinz. Chemische Untersuchung der Eier von Rana temporaria und ihrer Entwicklung. (Basel). Zürich, 1901.

Kollegorsky, Woldemar. Über Abkömmlinge des Benzylidenmethylamins. Basel, 1899.

Koltscharsch, Friedrich. Beiträge zur Kenntnis des Formylphenylessigesters. Würzburg, 1901.

Koppen, Albert. Ueber die Einwirkung von Säurechloriden auf Ketoxime. Erlangen, 1896.

Korn, A. Ueber Methoden Pepsin quantitativ zu bestimmen. Tübingen, 1902.

Kornstaedt, Ernst. Ueber einige organische Titan- und Siliciumverbindungen. Rostock, 1900.

Korten, Heinrich. Über das ω-Monochlor-, das ω-Monobrom- und das m-Nitro-ω-Monobromacetophenonoxim und einige Derivate derselben. (Freiburg i. Schw.). Karlsruhe, 1899.

Kowalevsky, Wladimir v. Über wässerige Zinnchloridlösung. Breslau, 1902.

Kownatzki, Erwin. Ueber die Einwirkung von Amidosulfonsäure auf Ortho- und Paraanisidin. Erlangen, 1900.

Krafft, Alb. Über Vinylessigsäure ($\beta\gamma$-Crotonsäure). Basel, 1899.

Krafft, Erhard v. [1.] Ueber einige neue Cumarine aus β-Ketonsäure-Estern und Phenolen. [2.] Ueber Isodicrotonsäure. Tübingen, 1902.

Krahé, Eduard. Ueber synthetische Versuche mittels Aluminiumchlorid. (Erlangen). Köln, 1901.

Krahe, Wilhelm. Zur Kenntnis der tertiären aromatischen Phosphine und Arsine. Rostock, 1900.

Kraith, Alfred. Untersuchungen in der Carvonreihe. Heidelberg, 1900.

Kramer, Otto. Recherches sur un isomère de la phénosafranine. Genève, 1900.

Kramers, G. H. Sur quelques alcaloïdes de l'opium (papavérine, cryptopine, laudanosine, laudanine). Genève, 1901.

Krannich, Carl. 1. Ueber partielle Racemie. 2. Benzophenon-o-sulfosäure und einige ihrer Homologen. Breslau, 1901.

Kraus, Edward H. Ueber einige Salze der seltenen Erden. Leipzig, 1901.

Krause, Max. I. Ueber einige Derivate des m-Oxybenzaldehydes. II. Ueber einige neue Oxyazokörper. Heidelberg, 1898.

Krauss, Hans. Ein Fall von innerlicher Phenol- und Chloroformvergiftung. München, 1901.

Krecke, Friedrich. Beiträge zur Kenntnis der Dihydrochinazoline. (Erlangen). Wiesbaden, 1899.

Kreichgauer, Andreas. Ueber den Einfluss von Säuren auf das optische Drehungsvermögen von Asparaginlösungen. Marburg, 1899.

Krell, Hans. Ueber die Einwirkung von Halogenalkylen auf die Alkalisalze der Amidophenole und Amidobenzolsulfosäuren. Erlangen, 1901.

Kreuter, Otto. Beiträge zur Kenntniss des Parachlormetanitrochinolins und der Ortho- und Ana-sulfonsäuren des Parachlorchinolins. (Freiburg i. B.). Leipzig, 1895.

Krey, Carl. Ueber die Einwirkung von Aldehyden und Ketonen auf die Thiosemicarbazide. Erlangen, 1899.

KRIEGER, H. T. Ueber die Darstellung krystallinischer thierischer Eiweissstoffe. Strassburg, 1899.

KRIEWITZ, OSCAR. Ueber Addition von Formaldehyd an einige Terpene. Breslau, 1899.

KRÖHNKE, OTTO. Chemische Untersuchungen an vorgeschichtlichen Bronzen Schleswig-Holsteins. Kiel, 1897.

KROMSCHRÖDER, GEORG. Synthetische Versuche in der Chinazolinreihe und Beiträge zur Kenntniss des p-Oxy-m-dibrombenzaldehyds. Erlangen, 1896.

KROSTEWITZ, WALTER. Über para-Aethylchinaldin. Freiburg i. B., 1902.

KRÜGENER, RUDOLF. Über Ketobromide und Ketochloride aus Dioxy- und Diamidodiphenylmethan. Marburg, 1898.

KRÜGER, ERNST. Synthese und Verhalten der Toluyldimethylessigsäure. (Göttingen). Melle i. Hann, 1902.

KRÜGER, GERHARD. Ueber die Einwirkung alkoholischer Kalilauge auf die Ester halogensubstituierter ungesättigter Säuren. (Versuche zur Gewinnung von Allencarbonsäuren.) München, 1901.

KRÜGER, R. Die Condensation der permanenten Gase. Stralsund, 1900. 4to.

KRÜSS, GERHARD. Untersuchungen über das Atomgewicht des Goldes. München, 1886.

KUCHENBECKER, ADOLF. Über die Einwirkung von Chlorkalk auf Diazo- und Isodiazoverbindungen. Marburg, 1902.

KÜLLENBERG, ALBERT. Über die drei Nitrobenzaldiphenylitaconsäuren, ihre Synthese und ihre Umwandlungsprodukte. Leipzig, 1901.

KÜSPERT, FRANZ. Versuche zur Darstellung neuer Metallverbindungen des Acetylens und Benzols. Nebst einem Anhang: I. Über die Einwirkung von Hydroxylamin auf Calciumcarbid. II. Eine Methode zur massanalytischen und gasometrischen Bestimmung von Hydroxylamin und Hydrazin. München, 1898.

Küttner, S. Ueber Chinazolin- und Indazolsynthesen. (Erlangen). Heidelberg, 1891.

Kufferath, August. Das Hydrazid der (3)-Pyrazolonessigsäure. (Heidelberg). Bonn, 1899.

Kuhlmann, Heinrich. Beiträge zur Kenntnis des 3.4.5.Trichloranilin's und des meta-para-ana-Trichlorchinolin's und ihrer Derivate. Freiburg i. B., 1900.

Kuhn, C. Ein Beitrag zur Geschichte der Acetylen-Industrie. München, 1901.

Kullhem, Henrik August. Om isononylamid och isononylsyra. Helsingfors, 1874.

Kunckell, Franz. Synthese substituierter Imidazole. Rostock, 1902.

Kunheim, E. Ueber die Einwirkung des Lichtbogens auf Gemische von Sulfaten mit Kohle. Berlin, 1900.

Kunlin, Julius. Ueber eine merkwürdige Umwandlung einer α-Ketonsäure in die zugehörige α-Amidosäure. Strassburg, 1899.

Kuntze-Fechner, Johannes Martin. Über eine Darstellung des benachbarten Triphenyläthans und über die Einwirkung von Benzol auf Methylchloroform in Gegenwart von Aluminiumchlorid. Leipzig, 1902.

Kunz, M. A. Untersuchungen über Phenanthren. Berlin, 1902.

Kunze, Johannes. Über die Einwirkung von schwefliger Säure und Kupferpulver auf Nitrodiazobenzole und Azodiazobenzol resp. Toluol. — Über die Bildung von Binitrokresolen bei der Nitration des Reintoluols. (Basel). Freiburg i. Br., 1899.

Kupffender, Alfred. Ueber o-Methylchinaldin und α-o Dimethylchino-a = p-chinolin. Freiburg i. B., 1900.

Kurtz, Wilhelm. Ueber Pseudophenylessigsäure. (Kiel). Tübingen, 1896.

Kuschel, Friedrich. Zur Kenntnis des o-Chlor-allo-m-Bromanilins und des o-Chlor-ana-Bromchinolins. Freiburg i. B., 1900.

AN, BERNHARD VAN DER. Ueber die Hydrazide und Azide von Alkylglycolsäuren. Heidelberg, 1902.

BAND, L. Studien über die Bedeutung der Elektrolyse in der forensen und Nahrungsmittelchemie. München, 1901.

BHARDT, HANS. Zur Kenntnis der Einwirkung von einigen Derivaten der Kohlensäure auf Abkömmlinge des Phenylhydrazins. (Zürich). Basel, 1899.

CH, THEODOR. Ueber eine neue Diphenylmethandicarbonsäure. Greifswald, 1899.

CZKOWSKI, LUDWIK VON. Zur Kenntnis der Carbindogenide. Freiburg, (Schweiz), 1898.

DEWIG, LOUIS. Ueber die Einwirkung von Pyrophosphorsäurechlorid und Phosphorpentoxyd auf Amine der aromatischen Reihe. Rostock, 1896.

DISCH, CARL. Über die Hexahydro-p-Benzylamincarbonsäuren. München, 1899.

ER, CARL VON. Untersuchungen über die Natur der Fettkügelchen sowie über den Einfluss ihrer Grösse auf die chemischen Eigenschaften des Butterfettes und auf den Butterungsvorgang. (Leipzig). Herford, 1897.

FOURCADE, A. Contribution à l'histoire générale de la pharmacie, en particulier à l'histoire de la pharmacie toulousaine. Toulouse, 1899.

GERMARCK, BERNDT HERMAN. Om broms inverkan på brandvinssyra. Helsingfors, 1868.

GUTT, JAN. Beiträge zur Kenntnis des β-Phenylhydroxylamins. Zürich, 1899.

MBLING, EUGÈNE. Action de l'isocyanate de phényle sur quelques oxyacides et de leurs éthers. (Paris). Lille, 1902.

MOUROUX, FERNAND. Solubilité dans l'eau de quelques acides benzoïques monosubstitués. Montpellier, 1900.

Landau, Josef. Ueber die Ester und Indonabkömmlinge der Cochenillesäure, sowie über einige Indonderivate aus der Hemipinsäure. Berlin, 1900.

Landenberger, Albert. Ueber Derivate des p-Dichlorjodbenzols mit mehrwertigem Jod. Freiburg i. B., 1901.

Landsberger, Siegfried. Ueber die Darstellung von Triäthyl-p-Toluidin und Triäthyl-m-Xylidin, sowie über einige neue Derivate von Orthophenetedin und Orthoanisidin. Heidelberg, 1900.

Lang, Joh. Rob. Tobias. Om salpetersyrliga salter. (Upsala). Stockholm, 1857.

Lang, Otto. Ueber Produkte der alkalischen Hydrolyse des Blutalbumins (Erlangen). Berlin, 1899.

Lang, Walther. Beiträge zur Kenntnis des in der Seitenkette monosubstituierten o-Methylchinolins. (Freiburg i. B). Ems [1898].

Langbein, Georg. Beiträge zur Kenntnis der Amalgame. Königsberg, 1900.

Lange, Heinrich. Beiträge zur Kenntnis der Pyrrole. Jena, 1901.

Lange, Otto. Zur Constitution des Chinophtalons und Chinophtalins. (Preisgekrönt). Rostock, 1900.

Lange, Wilhelm. Über Halogenderivate der p-Oxyphenylessigsäure. Marburg, 1900.

Langguth, Friedrich Otto. Beiträge zur Kenntniss der p-Bibromcymolsulfonsäure. Freiburg i-B., 1886.

Langguth, Werner. I. Ueber das Verhalten des Goldes im Chlorstrom als die Ursache der Goldverluste beim chlorierenden Rösten goldhaltiger Erze mit Kochsalz. II. Ueber α-Methyl-α-oxyadipinsäure und die Produkte ihrer trockenen Destillation. (Basel). Freiburg i. Br., 1897.

Lanser, Theodor. Ueber Condensationen der Phenylpropiolsäure und ihrer Dibromide, sowie über einige Derivate des Dibromindons. Berlin, 1900.

NWER, WILH. Versuche über die Konservierung des frischen Fleisches mit Formaldehyd-Gelatine. (Freiburg). Bremen, 1899.

PRAS, JACQUES. Etude de quelques combinaisons moléculaires de la diphénylcarbazide. Lyon, 1902.

RSEN, EINAR. Ueber p-Xylyl-Phenyl-Keton und seine Ueberführung in β-Methylanthracen. Freiburg i. B., 1886.

SKE, VICTOR. Ueber die Einwirkung von Hydroxylamin und Säurehydraziden auf Carbodiphenylimid, Carboditolylimid, Phenylcyanamid und Dicyan. (Heidelberg). Wien, 1901.

SSERRE, J. Action de l'acide o-amino-benzoïlique sur la mono- et la dichloroquinone. Montpellier, 1897. 4to.

UCH, RICHARD. Ueber die Einwirkung von unterchloriger Säure auf einige organische Substanzen. München, 1887.

UDON, KARL. Über μ-α-Di-Phenyl-β-Äthyl Imidazole, deren Homologe, und einige ketosubstituierte Benzamidine. Rostock, 1900.

UENSTEIN, OTTO. Über Fluorjodate, Fluormanganite und über die Einwirkung von Fluorwasserstoffsäure auf Wismutsäure bezw. Kaliumbismutat. (München). Leipzig, 1899.

UFFER, ERICH. Zur Kenntnis des Phellandrens. (Göttingen). Hildesheim, 1900.

UREL, PAUL. Sur l'équilibre des systèmes chimiques. (Bordeaux). Tours, 1900.

AURENT, CHARLES. De l'action du sulfate chromeux sur les sulfates métalliques. (Paris). Rennes, 1901.

AUTERWALD, FRANZ. Das Diphenyltolylarsin und einige Derivate desselben. Rostock, 1897.

AVAL, HÉLEN. De l'action du noir animal sur les solutions d'alcaloïdes et de leurs sels. Montpellier, 1900.

EBEAU, PAUL. Le silicium et ses combinaisons artificielles. Paris, 1899.

LEBEAU, PAUL. Sur la préparation et les propriétés des arséniures alcalino-terreux. Paris, 1899.

LE BLANC, M. Darstellung des Chroms und seiner Verbindungen mit Hülfe des elektrischen Stromes. Halle, 1902.

LECLAIR, EDMOND. Histoire de la pharmacie à Lille de 1301 à l'An XI (1803). Étude historique et critique. Lille, 1900.

LEDDERBOGE, HERMANN. Ueber Xylidin und Pseudocumidinsulfonsäuren. Rostock, 1886.

LEEUWEN, J. H. K. VAN. Ueber die Spaltung von Seignettesalz und der entsprechenden Ammonium Verbindungen. (Basel.) Amsterdam, 1897.

LEFÈVRE, JULIEN. Liquéfaction des gaz. Paris, 1899.

LEHMANN, ERICH. Ueber eine neue Additionsreaction der Alkylenoxyde. Berlin, 1901.

LEHMANN, LOUIS. Ueber die Einwirkung von Phenylacetylen auf Diazoessigester. Kiel, 1896.

LEHMANN, MARTIN. 1. Über Bisazoxyessigsäure, Bisazoxymethan und Hydraziessigsäure. 2. Über Derivate des Isodiazomethans. 3. Über nitro-saminsäure Salze. Die Zwischenprodukte zwischen Nitroso- und Diazo-Körpern. Würzburg, 1901.

LEHMANN, PAUL. Über die Einwirkung von Natriumäthylat und Alkalien auf Arsenpentasulfid. (München). Leipzig, 1901.

LEHMANN, THEODOR. I. Ueber Erdölbildung. II. Verhalten der Grenzkohlenwasserstoffe gegen Schwefelsäure. Freiburg, (Schweiz), 1897.

LEHMANN, WILLY. Beiträge zur Kenntnis der Acetalisierung bei den Aldehyden und Diacylmethanen. Kiel, 1902.

LEHNERT, HERMANN. I. Ueber den toxicologischen Nachweis kleiner Mengen Quecksilber. II. Die Sauerstoff-Verbrennungsmethode. III. Quantitative Bestimmungen mit Wasserstoffsuperoxyd. IV. Ueber p-Xylol und dessen Derivate. (Heidelberg). Leipzig, 1896.

LEIDEL, LEONHARD. Ueber die Einwirkung von Phosphorpentabromid auf N-alkylierte Pyridone und Chinoline. Erlangen, 1899.

LEIGNES-BAKHOVEN, G. H. Eene bladzijde uit de warenkennis onzer gewichtigste voedingsmiddelen. Deventer, 1902.

LEIMBACH, ROBERT. Ueber das Hydrazid der Brenzschleimsäure. Heidelberg, 1900.

LEISSE, FRITZ. Ueber die Einwirkung von Brom auf p-Oxyzimmtsäure. Marburg, 1899.

LEIXL, OTTO. Zur chemischen Charakteristik der Malagaweine. Ein Beitrag zur Beurteilung d. Süss- u. Südweine. (München). Regensburg, 1899.

LEMME, WALTHER. Über die Wirkung von Ionen auf den Dampfstrahl und die Grösse der von ihnen mitgeführten Ladungen. Greifswald, 1901.

LENECEK, O. Der Torf und die moderne Torf-Industrie. Brünn, 1899.

LENORMAND, CAMILLE. Sur de nouveaux composés contenant un métal et plusieurs halogènes différents. (Paris). Tours, 1899.

LENTZ, FRITZ. Ueber Dioxysäuren und ein Dilacton aus dem Acetonylaceton. Strassburg i. E., 1901.

LEPEL, VICTOR VON. Ueber einige gemischte aliphatische sekundäre Amine und Derivate derselben. Rostock, 1897.

LEPÈRE, ERICH. Ueber drei isomere Oxyvalerolactone und ihre Umwandlung in Laevulinsäure. Strassburg, 1900.

LEROY, EMILE. Recherches thermochimiques sur les principaux alcaloïdes de l'opium. Paris, 1900.

LESER, G. Contribution à l'étude des cétones incomplètes. Lyon, 1899. 4to.

LESINSKY, JOSEPH. I. Zur Kenntnis der Thoriumverbindungen. II. Über quantitative Metalltrennungen durch Wasserstoffsuperoxyd. (Bern). *n. p. n. d.* [1898].

Lessing, Rudolf. (1) Über 1.4-N-Methylpyrrolidindicarbonsäure. (2) Über eine Bildung von Phenylcyclohexan aus Chinit. München, 1902.

Lettermann, Wilhelm. Versuche über Erzeugung von Wasserstoff aus Eisen und Wasser. (Giessen). Darmstadt, 1895.

Leupold, Ernst. Über einige Derivate der Phtalsäure. Basel, 1897.

Leuscher, Ernst. Ueber die Halogenalkylate der α- sowie α-o-substituirten Cinchoninsäuren und ihrer wichtigsten Derivate. Freiburg i. B., 1896.

Levi, Robert. Synthese des 2-Oxyflavons. Bern, 1899.

Levin, Wolf. Ueber Umlagerungsproducte symmetrischer di-para-halogenirter Hydrazobenzole. Berlin, 1900.

Levinstein, Edwin. Über einige Kondensationsprodukte des Äthylmethylketons. Berlin, 1902.

Levinstein, Herbert. Ueber die Einwirkung von Diazobenzol auf Nitromethan. Zur Kenntniss von Nitroformazyl und Nitroformaldehydphenylhydrazon. (Bern). Berlin, 1901.

Levy, Albert. Recherches sur un nouvel isomère de la rosinduline et quelques-uns de ses dérivés. Genève, 1901.

Levy, Louis. Ueber stereoisomere Copellidine und über die Oxydation von racemischem Copellidin mit Wasserstoffsuperoxyd. (Freiburg, Schweiz). Berlin, 1897.

Levy, Paul Ernst. Beiträge zur Kenntniss der Aldehyde mit doppelter und dreifacher Kohlenstoffbindung. (München). Mainz, 1897.

Lewin, Isaac. Beiträge zur Kenntnis der Isomerie der Formylverbindungen. Heidelberg, 1898.

Lewinthal, M. Ueber das Gummigutti. Bern, 1900.

Lewkowitsch, J. Laboratoriumsbuch für die Fett- und Oelindustrie. Braunschweig, 1902.

Leyden, Paul. Zur Kenntnis des Dimethylanilinoxyds und des Dimethylparatoluidinoxyds. (Bern). Leipzig, 1900.

LICINSKI, HIPOLIT. Beiträge zur Kenntnis der Pyrazolonfarbstoffe. Bern, 1898.

LICKROTH, GEORG. Über die Abspaltbarkeit von Substituenten aus dem Benzolkern. Heidelberg, 1900.

LIEBERMANN, HANS. Untersuchungen über den Farbstoff der Cochenille. Berlin, 1899.

LIEBERMANN, WILLY. Beiträge zur Frage über die Bestimmung von geringen Mengen Kuhbutterfett in der Margarine. (Rostock). Berlin, 1890.

LIEBIG, HANS FREIHERR VON. Über den Aldehyd der Adipinsäure. München, 1899.

LIEBKNECHT, OTTO. Ueber die Sauerstoffsäuren des Iods. Berlin, 1899.

LIECK, HANS. Über einige Derivate des Mesityloxyds. (Basel). (Aachen ?), 1900.

LIEDTKE, MAX. Ueber o-a-Dimethylchinaldin. Freiburg i. B., 1902.

LINDE, RICHARD VON DER. Über Oxydations- und Reduktionsketten. Marburg, 1902.

LINDENBAUM, SIMON. Ueber die Einwirkung von 2.3-Dibrom-α-naphtochinon auf o-, m- und p- Phenylendiamin, sowie über einige Derivate des α, β-Naphtophenazins. Berlin, 1901.

LINDENBERG, EUGEN. Ueber die Carbonate der drei Dioxybenzole. München, 1898.

LINDENBERG, WILLY. Beiträge zur Kenntniss des p-Xylylhydrazins, des Pikryl-, o-p-Dinitrophenyl- und 2-Nitro-5-chlorphenyl-p-Xylylhydrazins und der Derivate der letzteren. Freiburg i. B., 1900.

LINDT, LOUIS. Ueber die Einwirkung von Alkalipersulfat auf Kohlenhydrate und sechswertige Alkohole. Ueber die Einwirkung von Alkalipensulfat auf die Harnsäuregruppe. Lausanne, 1898.

LINGENBRINK, EDMUND. Ueber Hydrazone der Dithiokohlensäureester. Erlangen, 1901.

Lingg, Ferdinand. Über β-Isophenylessigsäure. (Tübingen). München, 1898.

Linnemann, Friedrich. Beiträge zur Kenntnis der Indulinderivate. Erlangen, 1899.

Liotard, E. Notes de chimie. (Matière médicale, histoire naturelle.) Nice, 1899.

Lipczynski, Erich. Ueber die Reductionsproducte des Carvons. Göttingen, 1897.

Lipinski, Paul. Über n-Octylverbindungen. Breslau, 1902.

Litterer, Gustav. Über Oxyarylphtalide. Freiburg, (Schweiz), 1901.

Lobeck, Arthur. Beiträge zur chemischen Kenntnis der Flores-Koso. Leipzig, 1901.

Lodter, Wilhelm. Ueber die "Einwirkung von Natrium auf aromatische Nitrile und aromatische Kohlenwasserstoffe und über den Aldehyd der α Naphtoesäure". München, 1887.

Loebe, Richard. Beitrag zur Kenntnis der Zink- und Cadmiumcyanide. (Berlin). Jena, (1902).

Loebell, Willy. I. Ueber die Oxydationsprodukte reiner Palmitinsäure durch Salpetersäure. II. Darstellung der Adipinsäure auf elektrosynthetischem Wege. Tübingen, 1896.

Löhr, Hans. Beiträge zur Kenntnis des Carvons und Encarvons. Göttingen, 1898.

Löloff, Carl. Ueber p-Trianisyl- und p-Triphenetylstibin und einige ihrer Derivate. Rostock, 1897.

Lörcher, G. Ueber den Einfluss von Salzen auf die Labwirkung. Tübingen, 1897.

Löscher, Paul. Ueber N-Alkyl-Aldoxime und deren Spaltungsprodukte. (Erlangen). Leipzig, 1899.

Löw-Beer, Oskar. Studien über die Constitution der Oxyazokörper. Heidelberg, 1901.

WENSTAMM, WILLY. Ueber Metallsalzverbindungen des Schwefelharnstoffs, ein Beitrag zur Kenntnis der komplexen Verbindungen einwertiger Metalle. Berlin, 1901.

VENSTEIN, BERNH. Über einige Derivate des Phenanthrens. Zürich, 1898.

VY, EMIL. Zur Synthese aromatischer Aldehyde. Heidelberg, 1898.

VY, MAX. Ueber neue Derivate des Amarins. Freiburg, i. B., 1887.

VY, ROBERT. Ueber Flavon Derivate. (Basel). Wien, 1897.

ÖFER, WILHELM. Über die Untersuchung und technische Behandlung von Gemengen der Karbonate, Silikate, Hydrate und Sulfide des Natriums. Zürich, 1901.

MEL, WILHELM. "Beiträge zur Kenntnis der Aldoxime und ihrer Umlagerung durch Fluorwasserstoff." Leipzig, 1902.

G, GASPARD. Sur quelques dérivés aromatiques du pyrrol. Genève, 1897.

NES, CARL. Beitrag zur Kenntnis der Benzilsäure, der Pinakoline, des Biphenylbiphenylen- und Dibiphenylenäthans sowie des unsymmetrischen Biphenylbiphenylenäthans. Rostock, 1897.

, HENRI VAN. Ueber das β-Dichinolylin. München, 1885.

ENZEN, FERDINAND. Ueber Hydrazide von Sulfosäuren. Kiel, 1896.

SEN, OTTO. Beiträge zur Kenntnis des Camphorylhydroxylamins. Königsberg i. Pr., 1902.

SOW, EMIL. Ueber einige Derivate der Cinchoninsäure. München, 1900.

TERMOSER, A. Ueber anorganische Colloide. Stuttgart, 1901.

BERGER, HANS. Untersuchungen über Chinolinkarbonsäure-Alkylderivate. Freiburg i. B., 1896.

LIN, ALFRED. Ueber die drei Nitrobenzalhydrazine. Heidelberg, 1900.

LUC, ARMAND DE. Zur Kenntnis der Hydroxylamin- und Ammoniakverbindungen der Metalle. (Tübingen). München, 1900.

LUDEWIG, HANS. Beiträge zur Kenntnis der Brenzkatechinessigsäure. (Rostock). Dresden, 1899.

LUDWIG, ALBERT. Über das 2-Bromflavon. Bern, 1898.

LUDWIG, KURT. Über Nitro- und Amidoverbindungen des Triphenyl- und Tritolylarsins. (Rostock). Leipzig, 1901.

LÜDDE, FRIEDRICH. Über neue Abbauprodukte der Pulegonsäure. (Göttingen). Weimar, 1899.

LÜDERS, M. Ueber einige Aminoverbindungen der Puringruppe. Berlin, 1899.

LÜHDER, ERNST. Über den Einfluss von Kernsubstituenten auf die Reaktionsfähigkeit aromatischer Aldehyde und Ketone. Greifswald, 1902.

LÜTGERT, ADOLF. Über die Einwirkung von Chlorkohlensäureester und Chloressigsäureester auf α-Benzyl- und α-Äthylphenylhydrazin. Rostock, 1897.

LÜTTGEN, GUSTAV. Ueber die Anlagerung von Blausäure an Benzalmalonsäureäthylester und über die Einwirkung von Ammoniak auf Cyanbenzylmalonsäureester. Bonn, 1899.

LUMMERZHEIM, MAX. Über Kondensationsprodukte von Hydrazobenzol mit aliphatischen Aldehyden. Leipzig, 1899.

LUNDAHL, WILH. K. Om betahexylacetättikester och betahexylmalonsyreester jemte deras derivater. Helsingfors, 1881.

LURIE, MARK. Ueber α-Aethyl β-oxybuttersäure und ihre Spaltungsprodukte. Strassburg i. E., 1902.

LUSCH, OTTO. Ueber die Konstitution der Einwirkungsprodukte der salpetrigen Säure auf Thiosemicarbazide. Erlangen, 1899.

LUTHER, R. Studien über umkehrbare photochemische Processe. Leipzig, 1900.

LUTZ, OSKAR J. Über die Einwirkung von Ammoniak und Aminbasen auf Halogenbernsteinsäuren. Rostock, 1899.

LUX, MICHAEL. Ueber Keto- und Hydroxylactone. Strassburg i. E., 1898.

MAARSEVEEN, GERTRUIDA W. P. VAN. Ueber die Beziehung zwischen Lösungswärme, Löslichkeit und Dissocionsgrad. (Zürich). Amsterdam, 1897.

MAASS, EMIL. Einwirkung von Wasserstoffsuperoxyd auf Tetrahydrochinolin und Tetrahydroisochinolin. (Freiburg, Schweiz). Berlin, 1897.

MAASS, THEODOR A. Studien über die Beständigkeit komplexer Anionen. (Basel). Freiburg in Baden, 1901.

MAASSEN, ALBERT. Ueber einige vom m-Toluilendiamin sich ableitende Azo- und Diazoverbindungen. Bonn, 1885.

MACINTYRE, ALFRED E. Ueber einige neue Basen der Camphergruppe. Jena, 1900.

MAEHLY, PAUL. Beiträge zur Kenntnis der Diphenylaether und einige Analoga. Basel, 1898.

MAIBORN, ALFRED. Zur Kenntniss der Moleculargrösse anorganischer Salze in organischen Lösungsmitteln. Zürich, 1898.

MAIER, J. Studien über Ringcondensationen. Braunschweig, 1901.

MAISEL, WILHELM. Kritische Studien über den Nachweis der Cyanverbindungen in forensen Fällen. (Erlangen). München, 1895.

MAJEWSKI, IGNAZ JULIUS. Über Oxydation mittels Kaliumpermanganat einiger Verbindungen der Campher-Reihe sowie ein Beitrag zur Constitution des Camphens, Camphers und der Camphersäure. Leipzig, 1898.

MAJEWSKI, KARL VON. Beitrag zur Kenntnis der Diazoimidobenzolderivate. Basel, 1898.

MALBOT, A. Sur les causes de la présence de la mannite dans le vin et sur les moyens de l'y doser. Montpellier, 1898.

MALDÈS, FRANÇOIS. Étude sur la solubilité du sulfate de cuivre en présence des sulfates de : ammoniaque, potasse, soude, fer et alumine (Mélanges en proportions équimoléculaires). Montpellier, 1901.

Malméjac, Denis-Jean-Marie-François. Contribution à l'étude chimique des matières organiques de l'eau. Nancy, 1900.

Mamlock, Leonhard. Ueber alkylirte Hydroxylamine. Berlin, 1901.

Manassewitsch, Efime. Beiträge zur Kenntnis der Molybdate des Zinks und Cadmiums. Bern, 1900.

Manget, Charles. Contribution à l'étude de la chimie industrielle des farines et particulièrement du gluten et de l'acidité. (Nancy). Nantes, 1901.

Mangler, Georg. Ueber das sogenannte Aethenyltrisulfid (Tetraaethenylhexasulfid) und einige seiner Derivate. Freiburg i. B., 1900.

Mann, Eugen. Ueber einige Abkömmlinge des Nitroparaphenylendiamins. Tübingen, 1897.

Mann, Gustav. Kryoskopische Untersuchungen. Heidelberg, 1901.

Mann, Karl. Ueber quantitative Bestimmung aetherischer Oele in Gewuerzen. Würzburg, 1900.

Mannheim, Emil. Ueber die Einwirkung von Iodalkylen auf Quecksilberantimonid. Bonn, 1900.

Manoukian, Wahan. Ueber die Einwirkung des p-Xylylenbromids auf einige primäre, secundäre, tertiäre Amine und Alkaloide. Breslau, 1901.

Manthey, Willy. Ueber die Condensation von α-Bromallozimmtsäure, sowie über die Constitution des Truxons und seiner Derivate. Berlin, 1900.

Marburg, Eduard C. Beiträge zur Kenntnis der Quecksilberstickstoffverbindungen. München, 1899.

Marc, Robert. Die Kathodoluminescenz-Spektren der seltenen Erden und Untersuchungen über die Erden der Yttergruppe. München, 1902.

March, F. Action des éthers et cétones monohalogènes sur l'acetylacétone. Paris, 1902.

Marcuse, Arthur. Zur Stereochemie der Piperidinreihe. Rostock, [1901].

Maric, Albert. Über einige Akridiniumfarbstoffe. (Basel). Genf, 1901.

Marienhagen, Georg. Ueber die Einwirkung von Brom und Salpetersäure auf Thiophensulfonsäuren und einige Condensationsprodukte des Thiophens. Rostock, 1897.

Maronneau, Georges. Sur la préparation et les propriétés de quelques phosphures métalliques à haute température. Paris, 1899–1900.

Martens, Paul. Über die o-Xylolphtaloylsäure und die Phtaloylphtalsäure. Greifswald, 1900.

Martin, Léon. Action réductrice de l'aluminium sur les chromates métalliques. Lyon, 1902.

Matfus, Israel. Zur Kenntniss der Reaction zwischen Hydroxylamin und ungesättigten Ketonen. Berlin, 1899.

Matis, M. Recherches sur quelques dérivés de la β naphtoquinone et sur la constitution du dinitro-β-naphtol. Genève, 1899.

Matthes, Hermann. Beiträge zur Kenntnis der Hydramine. Jena, 1899.

Matz, Georg. Einwirkung von aromatischen Amidohalogenketonen auf Benzamidin. Rostock, 1901.

Mauch, Richard. Ueber physikalisch-chemische Eigenschaften des Chloralhydrats und deren Verwertung in pharmaceutisch-chemischer Richtung. Strassburg i. E., 1898.

Maué, Anton. Untersuchungen über Meta-Xylidinsulfosäure. Marburg, 1902.

Mauz, Theodor. Ueber einige Derivate des Triphenylmethans und Trinitrotriphenylmethans. Tübingen, 1896.

May, Max von. Ueber die Einwirkung von m- und p- Oxybenzaldehyd auf Indandion. Bern, 1897.

Mayer, Bertram. Ueber stereoisomere Phenylglycerinsäuren. (Basel). München, 1898.

MAYER, JO. Über Metalltrennungen in alkalischer Lösung durch Wasserstoffsuperoxyd und durch Hydroxylamin. (Heidelberg). Karlsruhe, 1898.

MAYER, R. Beitrag zur Aufklärung der Constitution mehrfach nitrirter Anile: Ueber β- und γ-Dinitromethyltoluidin. Berlin, 1900.

MAYR, ERNST. Ueber einige Derivate der Dibenzalpropionsäure. München, 1899.

MAYRHOFER, FRIEDRICH MAX. Ueber das Oxaminocarvoxim und seine Ueberführung in D[illegible]rvyldiamin. Berlin, 1899.

MEBOLD, CHRISTOPH. Bestim[illegible]n Metallspuren in Nahrungs- und Genussmitteln durc[illegible]lyse. Würzburg, 1901.

MECHLENBURG, HERMANN. Unt[illegible]ungen über p-Diamidostilben und p-Dioxystilben. Marbu[illegible]900.

MEDER, OSKAR. Beiträge zur [illegible]is der Pyrazolgruppe. Jena, 1901.

MEGERLE, WILHELM. Über aromatische Ortho-Phosphorsäureester und über Aethylendiamin-Additionsprodukte an Salze zweiwertiger Metalle. (Zürich). Saalfeld, 1900.

MEHNER, H. Ueber Abkömmlinge der Anthranilsäure. Dresden, 1901.

MEHNER, HANS. Über die Kuppelung der Toluidine mit Diazoverbindungen. Ein Beitrag zur Kenntniss d. Diazoaminoverbindungen. (Rostock). Leipzig, 1902.

MEHRING, WILHELM. Versuche zur elektrochemischen Oxydation organischer Stoffe. Giessen, 1902.

MEIGEN, WILHELM. Beiträge zur Kenntniss des kohlensauren Kalkes. Freiburg i. B., 1902.

MEIGEN, WILHELM. Ueber Nitroderivate des Azophenylens. Beiträge zur Kenntniss der sogenannten Azine. Freiburg i. B., 1896.

MEIMBERG, ENGELBERT. Ueber die Einwirkung von Brom und Chlor auf Dioxydiphenyltrichloräthan und Dioxydiphenyltribromäthan. Marburg, 1901.

Meisenheimer, Jakob. Ueber Additionserscheinungen bei mehrfach ungesättigten Carbonsäuren. München, 1899.

Meiser, Georg Wilhelm. Neue Derivate des Cyclopentans und des Dipentamethenyls. Leipzig, 1898.

Melcher, Max. Über die Einwirkung von Kohle und Schwefel auf die Sulfate des Natriums, Kaliums und Aluminiums. (Bern). Berlin, 1901.

Melchiker, Paul. Ueber ein Chlorphosphin des o-Chlortoluol und über die Nitro- p-tolylphosphinsäuren. Rostock, 1898.

Melsbach, Heinrich. Ueber die Einwirkung von Alkalien auf aromatische Säurehydrazide. Heidelberg, 1901.

Melville, John. Über die Vorgänge bei der Umwandlung von Kaliumhypochloritlösungen. Leipzig, 1901.

Mend, Albrecht. Über Elektrosynthesen aus Oxy- und Aethoxy-Säuren. (Basel). München, 1900.

Mengers, Hans. Beiträge zur Kenntniss der Ueberselensäure. Berlin, 1901.

Menne, Ernst. Ueber Pseudoharnstoffe. Berlin, 1899.

Mentzel, Curt. Über Derivate des Dibenzalketopentamethylens. Halle a. S., 1900.

Menvielle, J. Etude sur le poison des flèches. Toulouse, 1900.

Merckens, O. Ueber die α-Phenylglutarsäure und ihre Condensation mit Benzaldehyd. Die γδ-Diphenyl-γδ-pentensäure. Basel, 1902.

Mercklin, Hermann. Beiträge zur Kenntniss der Aluminiumchlorid Reaction. Freiburg i. B., 1885.

Merk, Bernhard. Neue Beiträge zur Kenntniss des Digitogenins und seiner Abbauprodukte. Freiburg, 1901.

Merkel, Eduard. Beitrag zur Kenntnis der aus Eieralbumin dargestellten Peptone und Albumosen. Erlangen, 1901.

Merl, Theodor. Zur Kenntnis des Pyridins. Erlangen, 1901.

Metelka, Milan. Ueber die Wanderungen der Ionen. Berlin, 1899.

Mettler, Carl. Über die Einwirkung von Phosgen und Pyridin auf Oxysäuren und Säureamide. München, 1902.

Metzger, Richard. Ueber Einwirkung von Quecksilberoxydsalz auf aromatische Verbindungen. Tübingen, 1901.

Metzger, Sigmund. Pyridin, Chinolin und ihre Derivate. Gekrönte Preisschrift. (Würzburg). Braunschweig, 1885.

Metzing, Max. Studien üb[illegible]konsäure. Königsberg i. Pr., 1901.

Metzke, Hermann. Über einige Arsenate des Eisenoxydes. Rostock, 1898.

Meusel, Walther. Über Acetphenylglycin-o-carbonsäure. Halle a. S., 1900.

Meves, Wilhelm. Über die Einwirkung von Cyan auf aromatische Amine. (Rostock). Dresden, 1899.

Meyer, E. Ueber das α-Chinolylhydrazin und seine Derivate. Berlin, 1900.

Meyer, Eduard. Ueber Löslichkeitsbeeinflussungen und Gleichgewicht und Reaktionsgeschwindigkeit in heterogenen Systemen. Heidelberg, 1901.

Meyer, Felix. Einwirkung von ammoniakalischer Kupferoxydullösung auf Diazoniumsalze. Halle a. S., 1900.

Meyer, Ferdinand C. Ueber die Einwirkung von Phenylisocyanat auf Aminocrotonsäureester. Rostock, 1900.

Meyer, Frederick L. Ein Beitrag zur Kenntnis des Fenchons. Göttingen, 1897.

Meyer, Gustav. Ueber den Gehalt der Kartoffeln an Solanin und über die Bildung desselben während der Keimung. (Erlangen). Leipzig, 1895.

Meyer, Heinrich. Über Umformungen des Methylhexylenketons. (Göttingen). Hannover, (1900).

MEYER, JULIUS. Zur Constitution der Pulegonsäure. (Göttingen). Hildesheim, 1900.

MEYER, LEO. Zur Kenntniss des Diphenylins. Berlin, 1900.

MEYER, OTTO. Versuche zur quantitativen Bestimmung der bei der Zersetzung der Eiweisskörper durch Säuren entstehenden Basen. Zürich, 1900.

MEYER, PETER. Ueber Amido- und Oxyphenanthrenchinone. (Freiburg i. B.). Bonn, 1886.

MEYER, ROBERT. Ueber Derivate des s-Jodpseudocumols mit mehrwerthigem Jod. Freiburg, 1901.

MICHAËLIS, WILHELM. (I.) Ueber die Verseifungsgeschwindigkeit aromatischer Aethylester und (II.) den Einfluss des Katalysators auf die Grenze der Esterbildung. Heidelberg, 1899.

MICHEL, FRITZ. Ueber die Reactionen der Malonesterderivate gegen 2-3-Dichlor-α-naphtochinon. Erlangen, 1900.

MICHELSON, CARL AUG. Om svafvelsyrlighet. (Upsala). Stockholm, 1860.

MIDDELBERG, W. Evenwichten in het stelsel barnsteenzuurnitrilzilvernitraatwater. Leiden, 1902.

MIELCKE, PAUL. Beiträge zur Kenntnis der α-Naphtoldisulfonsäure und der α-Naphtoltrisulfonsäure sowie ihrer Derivate. Freiburg i. B., 1885.

MIKLASZEWSKI, BOLESLAW. Beiträge zur Kenntnis der Anhydrobasen. Vergleichendes Studium der drei isomeren (β)-Aminophenylbenzimidazole. Zürich, 1900.

MILANESI, ITALO. Beiträge zur Kenntnis der (β)2-Naphtochinolin-8-sulfonsäure und des 8-Oxy-(β)2-Naphtochinolins. Freiburg i. B., 1898.

MILLS, WILLIAM HOBSON. Studien über Halogencumalinsäuren. Tübingen, 1901.

MINIAT, CARL. Über Monooxybenzalbromindanon. Bern, 1900.

MINICH, ALBERT. Ueber Periderivate der Naphthalinreihe. (Basel). Wien, 1898.

MINOVICI, STEPHAN S. Ueber einige aromatische Oxyazole und Imidazole. Berlin, 1897.

MISSLIN, EMILE. Sur quelques dérivés du trinitro-α-naphtol (2. 4. 8 NO_2 : 1 OH). Genève, 1901.

MITSCHERLICH, SIGURT. Ueber das 1-Phenyl-3-hydroxyl-5-Pyrazolon. Rostock, 1901.

MITTASCH, ALWIN. Über die chemische Dynamik des Nickelkohlenoxyds. Leipzig, 1902.

MITTELSTENSCHEID, ERICH. [illegible]ne cyklische Base $C_8 H_{15} N$ aus Methylheptenylamin. ([illegible]n). Hildesheim, 1901.

MOBERG, AD. Om kemiens ställning under 1700-talet. Helsingfors, 1872.

MÖCKEL, KURT. Ueber Jodoso-, Jodo- und Jodiniumverbindungen des p-Jodchinolins und substituirter p-Jodchinoline. Freiburg, 1901.

MOELLER, ERNST. 1. Über Derivate der o-Nitrobenzyl-o-aminozimmtsäure. 2. Über Umlagerungsprodukte der o-p-Azobenzoldikarbonsäure. Erlangen, 1902.

MÖLLER, K. Eine zur Untersuchung der Dichte äusserst verdünnter Lösungen geeignete Form des Dilatometers. Würzburg, 1901.

MOEST, MARTIN. Über die elektrische Leitfähigkeit von Oxychinonen und Salzen derselben. (Basel). München, 1899.

MOHR, E. Amine der Pyridinreihe. Heidelberg, 1901.

MOHR, OTTO. Über zwei stereoisomere 2,5-Dibromhexane und ihre Kondensationsprodukte mit Dinatriummalonsäureester und mit Cyankalium. Leipzig, 1901.

MOITESSIER, JOSEPH. Combinaisons de la phénylhydrazine avec les sels métalliques. Montpellier, 1900.

MOLL, GEORG. Über die Einwirkung von Aldehyden auf 2-4-Dimethylacetophenon. Bern, 1898.

MONHEIM, J. Beiträge zur Kenntniss des Tannenhonigs. Erlangen, 1899.

Moppert, Willy A. Über quantitative Bestimmungen des Kohlenstoffes, Stickstoffes und der Halogene in einigen organischen Verbindungen mittelst Alkali-Persulfates auf nassem Wege. Lausanne, 1899.

Morel, Albert. Recherches sur les éthers phénoliques à fonction mixte et à fonction complexe des acides carbonique, orthophosphorique et glycolique. (Paris). Lyon, 1900.

Morin, Eugène. Contribution à l'étude des sulfosels. Lyon, 1901.

Moritz, Karl. Ueber die Einwirkung von Kaliumpersulfat auf anomalische Kohlenwasserstoffe. Berlin, 1900.

Morschöck, Fritz. Ueber Brommethacryl- und Isobrommethacrylsäure. Königsberg i. Pr., 1902.

Moses, Nathan. Ueber p-Cyanbenzylchlorid. Berlin, 1899.

Moszczyc, Michael. Ueber ω-Derivate der p-Toluylsäure. (Basel). Karlsruhe, 1896.

Mott, Owen E. Ueber Benzylmalonhydrazid. Heidelberg, 1900.

Mottek, Siegbert. Beiträge zur Kenntnis der kondensierenden Wirkung organischer Amine. Heidelberg, 1902.

Motz, Friedrich. Über die Bestimmung des Phosphors im Eisen und in Eisenerzen. Leipzig, 1901.

Moufang, Eduard. Methode zur Molekulargewichts-Bestimmung in concentrirter Schwefelsäure. Würzburg, 1901.

Mouilpied, Alfred Theophilus de. Über die Kondensation von Anilessigestern mit Natriumalkoholat. Halle a. S., 1901.

Moulin, André. Sur quelques dérivés de la dulcine. Sa recherche et son dosage dans les substances alimentaires. Lyon, 1902.

Mouneyrac, A. Nouvelle méthode générale de préparation des carbures d'hydrogène chlorés, bromés et chlorobromés de la série acyclique. Paris, 1899.

Moureu, Ch. Constantes physiques utilisées pour la détermination des poids moléculaires. Paris, 1899.

Mourgues, Albert. Contribution à l'étude des persulfates alcalins. Leur dosage. Montpellier, 1901.

Mourlot, A. Recherches sur les sulfures métalliques. Paris, 1899.

Mourlot, Auguste. Constantes physiques utilisées pour la détermination des poids moléculaires. Paris, 1899.

Mudford, Frederic G. Versuche über die Einwirkung einer Mischung von Chlor und Wasserdampf auf glühende Kohle. Giessen, 1897.

Mühle, Paul. Versuche zur rstellung des Amphopeptons. Leipzig, 1901.

Mühlhauser, B. Ueber Untersuchungen in der Acridinreihe. Zur Kenntniss der α-Aethylidenglutarsäure. Basel, 1902.

Mühlstein, Arthur. Über orthosubstituierte Alkylaniline. Zürich, 1899.

Müller, Albert. Studien über sogenanntes Honigdextrin. Leipzig, 1901.

Müller, Eberhard. Versuche über pyrogene Zersetzung von Gasöl, Phenol, und Kreosot, allein und in Mischung. Nebst einem Anhang über die Absorption von Benzol in Paraffinöl und Wasser. (Basel). München, 1897.

Müller, Felix. Über die Resistenz des Diptherieheilserums gegenüber verschiedenen physikalischen und chemischen Einflüssen. (Bern). Jena, 1898.

Müller, Ferdinand. Ueber einige Derivate von Methylpseudocarbostyril. München, 1887.

Müller, Franz. Beitrag zur Kenntniss der Isorosindulinfarbstoffe. Erlangen, 1899.

Müller, Friedrich. Beiträge zur Kentniss des Isophorons, Kampherphorons und des Mesityloxyds. Göttingen, 1897.

Müller, Friedrich. Ueber die Einwirkung von Phosphorsulfochlorid auf die primären aliphatischen Amine und einige Sulfophosphazoverbindungen. (Rostock). Cassel, 1901.

Müller, Friedrich. Ueber phenylirte Pyrazine. Kiel, 1898.

Müller, Fritz. Ueber die Aufspaltung des Antipyrins durch Hydrazine. Jena, 1902.

Müller, H. Über Azoniumverbindungen aus Chlormethyl-o-Phenylendiamin. Lausanne, 1901.

Müller, Helmuth. Ueber die stereoisomeren Formen des α-Phenyl-α′-methylpiperidins. Breslau, 1901.

Müller, Herbert. Über Isorhodanatopentamminkobaltsalze. Zürich, 1900.

Müller, Karl. Die Einwirkung von Hydrazinhydrat auf Mandelsäureaethylester. Heidelberg, 1902.

Müller, Karl. Über Bildung von Condensationsproducten aus Pseudophenolen und organischen Basen und deren Verhalten bei der Acetylierung. Greifswald, 1902.

Müller, Max. I. Ueber die quantitative Bestimmung des Selens und des Tellurs durch Hydroxylamin und Hydrazin. II. Ueber die quantitative Trennung des Arsens von Baryum, Strontium und Calcium im Salzsäurestrome. Heidelberg, 1899.

Müller, Otto. Untersuchungen über die Abhängigkeit des Pseudophenol-Charakters von der Stellung der Halogenatome in der Seitenkette. Heidelberg, 1901.

Müller, Paul. Beitrag zur Kenntniss der Ferricyanerdalkalien. Berlin, 1901.

Müller, Richard. Über die Hydrolyse und Natrolyse von Ferrisalzen. (Tübingen). Stuttgart, 1899.

Müller, Wilhelm. Hydrolyse des Natriumphenats beim Siedepunkt seiner wässrigen Lösungen. (Giessen). Weimar, 1901.

Müller, Wilhelm. Ueber die Einwirkung von Oxaläther auf aromatische Amidokörper. Rostock, 1898.

Müller, Wilhelm. Ueber Ekgonin und Tropylamine. München, 1898.

MÜLLER, WILHELM. Untersuchungen über die Aufrahmfähigkeit der Milch im Zusammenhange mit ihrer physikalischen Beschaffenheit und ihrer Zusammensetzung, besonders mit ihrem prozentischen Fettgehalte. (Leipzig). Merseburg, 1901.

MÜLLER, WOLF. Über die Zersetzungsgeschwindigkeit der Brombernsteinsäure in wässeriger Lösung. (1. Der Reaktionsverlauf bei 50°.) Freiburg i. B., 1902.

MÜNDLER, MAX. Ueber Aminolyse. Heidelberg, 1901.

MUMME, ERICH. Über die Einwirkung von Chloressigsäure auf Anthranilsäure. Halle a.

MURACH, FRANZ. Ueber Produkte der alkalischen Hydrolyse des Blutalbumins. (Erlangen). Königsberg, 1900.

MYLIUS, ALBERT. Untersuchungen über Oxykobaltiake und Anhydrooxykobaltiake. Zürich, 1898.

NAEF, E. Nouvelles synthèses dans la série de l'acridine. Genève, 1901.

NÄGELI, H. Ueber Meta- und Para-Saccharin. Freiburg, 1902.

NAGAMATSZ, ATSUSUKE. Beiträge zur Kenntniss der Chlorophyllfunktion. Würzburg, 1886.

NAGEL, CARL. Ueber die Einwirkung von Säurechloriden bei Gegenwart von Aluminiumchlorid auf Oxybenzoësäureester. Greifswald, 1895.

NAGEL, WILHELM C. [I.] Ueber Ozomolybdate u. [II.] zur Kenntnis der niedrigsten Oxydationsstufe des Molybdaens. München, 1898.

NAHKE, ALEXANDER. Über einige Dithiënylderivate. Rostock, 1898.

NAKE, RUDOLF. [I.] Hydroxylaminderivate der Paratoluolsulfinsäure. [II.] Einwirkung von Formaldehyd auf Paratoluolsulfinsäure. (Rostock). Dresden, 1898.

NAOÚM, PHOKION P. Über Umlagerungen der stereoisomeren Dibenzalbernsteinsäuren und α-Benzal-γ-Diphenylitaconsäuren. Leipzig, 1899.

Naphtali, Max. I. Beiträge zur Friedel-Crafts'schen Reaction. II. Ueber Orthophenetidin und seine Derivate. (Heidelberg). Berlin, 1899.

Naquet, Alfred. De l'allotropie et de l'isomérie. Paris, 1860. 4to.

Narraway, Frank Whitlock. Ueber die Reaction zwischen Bibromiden und alkoholischem Kali, insbesondere über das Decylen und seine Derivate. Heidelberg, 1899.

Natcheff, C. Recherches sur les bases d'azonium dérivant du benzile. Genève, 1897.

Nathansohn, Paul. Beiträge zur Cumaronsynthese. Rostock, 1900.

Nathansohn, Simon. Über Oxyphosphazo-Verbindungen und Ester der N-Oxychlorphosphine der aromatischen Reihe. Rostock, 1898.

Nattermann, Hermann. Ueber den Nachweis des Phosphors bei forensisch-chemischen Arbeiten. München, 1897.

Naumann, Karl. Zur Constitution des Indigocarmins. Halle a. S., 1900.

Nauss, Oskar. I. Beitrag zur Kenntnis der Oxyanthrachinone. II. Ueber β-Phenylchinolin. (Basel). Karlsruhe, 1896.

Neander, Erwin von. Ueber Chino-a = p-α-phenylchinolin-γ-carbonsäure nebst einem Anhang über die Chino-a = p-α-Methylchinolin-γ-carbonsäure. Freiburg i. B., 1900.

Neelmeier, Wilhelm. Über die Verseifung der Ester mehrbasischer Säuren. Halle a. S., 1902.

Nef, John Ulric. Ueber Benzochinoncarbonsäuren. München, 1886.

Neff, Paul. Ueber die Einwirkung von Anilin, p-Toluidin, β-Naphtylamin und o-, m-, p-Amidobenzoesäure auf Nitro-β-Naphtochinon. Marburg, 1895.

Nefgen, August. Beiträge zur Chemie des Schieferthecres. (Rostock). Bonn, 1897.

Neidhart, Zeno. Beiträge zur Überführung der o-Oxychalkone in Flavonderivate. (Bern). Berlin, 1900.

Nernst, Walther. Die elektromotorische Wirksamkeit der Ionen. Leipzig, 1889.

Neuberg, Carl. I. Zur Kenntniss des Acroleins und Glycerinaldehyds. II. Ueber saure Ester der Borsäure. Berlin, 1900.

Neuenhaus, Hans Heinrich. Über ein neues Thioderivat des Desoxybenzoïns, das Dicarbotrithio-bis-desoxybenzoïn. Leipzig, 1899.

Neuhäusser, Max Bernard. Über die Darstellung des Mono- und Dibenzoylmalonsäureesters und über die Einwirkung von Phenylhydrazin auf diese Ester. Leipzig, 1899.

Neuhoff, G. Ueber Derivate des Phenanthren's. Freiburg i.B., 1885.

Neumann, Edgar. Zur Isomerie der Fenchenderivate. Göttingen, 1900.

Neumann, Max. Ueber Amidoazobenzoltrisulfosäure (Freiburg i. B.). Berlin, 1899.

Neumann, Richard. Beiträge zur Kenntnis der Phosphor-Arsen-Antimon-Gruppe. Heidelberg, 1900.

Neumann, Richard. Über einige Derivate des Pseudocumols. Zürich, 1900.

Neumayer, Theodor. Ueber die Reindarstellung der Monoglyceride. $C_3 H_5 (O . Cn H_{2n-1} O) (OH)_2$. Heidelberg, 1902.

Newman, Frank Herbert. Ueber eine Synthese des Triphenylcyclopentans und des Triphenylpyridins. Leipzig, 1898.

Ney, A. Ueber Derivate des Phenanthrens. Zürich, 1902.

Nickell, Gustav. Beitrag zur Kenntnis der Benzilsäure und Diphenylenglycolsäure. Die Tetraphenylenbernsteinsäure. Königsberg i. Pr., (1899).

Nicolaysen, Carl. Zur Kenntniss des Phenylacridins. Freiburg in.B., 1885.

NIEDENZU, CARL AUGUST. Ueber die Kondensationsprodukte des Aethyl-Phenylketons und der beiden Benzaldesoxybenzoïne mit Bernsteinsäurediaethylester. Leipzig, 1901.

NIEHRENHEIM, MAX. Beiträge zur Kenntnis der Chloräpfelsäure u. Oxyfumarsäure. (Königsberg). Berlin, (1902).

NIEROP, ADOLF SALOMON VAN. Ueber das Verhalten aromatischer Aldoxime gegen aromatische und aliphatische Isocyanate. (Heidelberg). Amsterdam, 1900.

NILSON, LARS FREDR. Om thialdin. Upsala, 1866.

NOELDECHEN, FRITZ. Ein Beitrag zur Kenntniss von Derivaten des Cyclopentadiens. (Erlangen). Guben, 1898.

NŒRR, WILHELM. I. Die Einwirkung von Chlormonoxyd auf Benzol. II. Über die Einwirkung von Bromcyan und Aluminiumchlorid auf Benzolkohlenwasserstoffe und von Bromcyan allein auf Dimethyl- und Diäthylanilin. (Basel). München, 1899.

NOETHLICHS, RICHARD. Ueber Condensationen von Oxymethylenkampher mit Acetessigester. Heidelberg, 1901.

NOLD, AUGUST. Ueber Diazomethan. Tübingen, 1897.

NOLL, ROBERT. Zur Kenntnis der Triazolverbindungen. Göttingen, 1900.

NOLTE, RUDOLF. Ueber einige organische Fluorverbindungen. Rostock, 1897.

NORMANN, WILHELM. Beiträge zur Kenntnis der Reaktion zwischen unterchlorigsauren Salzen und primären aromatischen Aminen. Freiburg i. B., 1900.

NOTTEBOHM, EDUARD. Ueber die Einwirkung von unterbromigsauren Natron auf primäre Amine. Freiburg, 1901.

NOWAKOWSKI, LEON. Über die Kondensation von Benzilsäure mit Phenolen. Freiburg, (Schweiz), 1899.

NÜESCH, PAUL. Recherches dans la série des rosindulines. Genève, 1901.

NYLANDER, CLAES WILH. GABR. Bidrag till kännedomen af quicksilfvercyanidens dubbelsalter. Lund, 1859.

OBERG, WILHELM. Ueber arsenhaltige Verbindungen des Pseudocumols und Cumols. Rostock, 1897.

OBERLÄNDER, OTTO. Ueber Löslichkeitsprobleme der organischen Chemie. (Heidelberg). Kaiserslautern, 1899.

OBERMILLER, GUSTAV. Ueber Einwirkung von Aminbasen auf Disulfide sowie ueber Kondensationen von Thiosemicarbazide mit Aldehyden. Erlangen, 1899.

OBERMILLER, JULIUS. Ueber einige Abkömmlinge des β-Methylumbelliferon. Tübingen, 1

ODERFELD, STANISLAW. Über einige aromatische Verbindungen mit dem Atomcomplex $C{\equiv}C$-CO und Synthese des 2-4'-Dioxyflavons. Bern, 1899.

OECHSLEN, ROBERT. Ueber cyklische asymmetrische Ammoniumsalze mit besonderer Berücksichtigung der Isomeriefrage und der Doppeldissoziation. Tübingen, 1902.

OEHLER, EUGEN. Abkömmlinge von Menthon und Tetrahydrocarvon. München, 1896.

OENICKE, HANS. Versuche zur Synthese des Apigenins. (Bern). Berlin, 1901.

OERTEL, ERNST. Über die Einwirkung von Alkali-Persulfat sowie des elektrischen Stromes auf Strychnin. (Lausanne). Hildesheim, 1900.

OESTERLIN, KARL. Zur Kenntniss der Azophenole und Amidophenole der Diphenylreihe. Berlin, 1899.

OESTERREICH, MAX. Ueber Reductions- und Oxydationsversuche des a-n-Dimethyloxazol sowie über dessen Condensation mit Acetaldehyd. (Zürich). Oppeln, 1897.

OESTERREICH, PAUL R. Einwirkung vou Schwefelammon auf nitrierte aromatische Nitramine und Nitrosamine. Freiburg, (Schweiz) 1899.

OETTEL, OTTO WILHELM FELIX. Ueber die quantitative Bestimmung des Fluors. (Rostock). Dresden, 1886.

OETTGEN, PETER. Über die Oberflächenspannung einiger organischer Substanzen in wässeriger und alkoholisher Lösung dargestellt als Funktion der Konzentration und Temperatur. Rostock, 1899.

OETTINGEN, HELMUTH VON. Über die Zersetzung des Natriumthiosulfats durch Säuren. Leipzig, 1900.

OGG, ALEXANDER. Ueber das chemische Gleichgewicht zwischen Amalgamen und Lösungen. (Göttingen). Leipzig, 1898.

OHLIGMACHER, CARL. Beiträge zur Kenntnis des Carvons. Göttingen, 1898.

OLLENDORFF, GERHARD. Beitrag zum Abbau von Zuckern durch Oxydation. (Ueber *d*-Lyxose und zur Constitution des Milchzuckers.)—Verfahren zur Reindarstellung und Trennung von Zuckern. Berlin, 1900.

ONNERTZ, PAUL. Ueber einige Umwandlungen der beiden Nitrophtalsäuren. Berlin, 1901.

OORDT, GABRIEL VAN. Ueber Cholesterin. (Freiburg i. B.). Heidelberg, 1901.

OOSTERBAAN, A. Bijdrage tot de quantitatieve bepaling van morphine in het opium. Utrecht, 1901.

OPPENHEIM, ALFRED. Ueber β-Benzoylisobuttersäure und einige zugehörige Pyridazinderivate. Berlin, 1900.

OPPENHEIM, KENT. Ueber die Doppelnitrite einiger Metalle. Berlin, 1900.

OPPENHEIMER, HUGO. Beiträge sur Kenntnis des Terephtalaldehydes. München, 1886.

OPPENHEIMER, MAX. Über die Glykokollverbindungen aromatischer Amido- und Amido-oxysäureester, eine neue Gruppe Anästhesie erzeugender Substanzen, nebst einem Anhange: Untersuchungen über das Anhydroecgonin. München, 1899.

OPPERMANN, ERICH. Zur Frage nach der Hydration gelöster Substanzen. Göttingen, 1901.

ORTMEYER, PAUL. Ueber die Einwirkung von Palmityl- und Stearylchlorid auf Phenylhydrazin und einige Amine. Rostock, 1897.

OSBORNE, A. WILLIAM. Beiträge zur Kenntniss des Invertins. (Tübingen). Strassburg, 1899.

OSBORNE, WILHELM. Ueber Diazoamidoverbindungen der Fettreihe und ihre Umwandlung in Derivate des Prozans. München, 1898.

OSER, ADAM. Recherches sur la transposition moléculaire de la 1.8 Dinitronaphtaline en intronitrosonaphtol. Genève, 1900.

OSIUS, FRIEDR. WILH. Synthese des 3.4-Dioxyflavons. Bern, 1899.

OSLAN, LAZAR. Dynamische Untersuchungen über die Verseifung des Acetessigesters und seiner Methylsubstitutionsprodukte. Heidelberg, 1901.

OSSEDAT, GEORGES. Sur deux ferrocyanures cuivreux et sur un cobaltcyanure cuivreux. Lyon, 1901.

OSSWALD, GUSTAV. I. Über die Umwandlung von Farbbasen in Pseudoammonium-Hydrate, -Cyanide und -Sulfonsäuren. II. Über Cyanoform. Würzburg, 1900.

OSTERSETZER GEN. VALDEK, HEINRICH. Dynamische Untersuchungen über die Bildung von Azofarbstoffen aus einigen Naphtylaminsulfosäuren und Diazobenzolsulfosäuren. (Heidelberg). Darmstadt, 1901.

OSTOJA BALICKI, GUSTAW LUDWIK V. Über die Condensationen der aromatischen Amine. Breslau, 1902.

OSWALD, ADOLPH. Über die chemische Beschaffenheit und die Funktion der Schilddrüse. (Zürich). Strassburg, 1900.

OTT, EMILE. Sur une nouvelle isorosinduline. Genève, 1901.

OTTE, FRITZ. Zur Kenntnis ungesättigter Phenoläther. Heidelberg, 1902.

OTTEMANN, LOUIS. Über die Umwandlungsprodukte des Methylcyklohexanonoxims. (Göttingen). Hildesheim, 1901.

OTTENS, JOHANN. Über die N-Phosphine des Monoaethylanilins. Rostock, 1899.

OTTERBEIN, JOSEPH. Toxikologische Untersuchungen über die Oxalsäure. Bonn, 1889.

PAACK, FRITZ W. Ueber das Diorthomethylparadichinolyl und einige seiner Derivate. (Freiburg i.-B.) Cassel [1899].

PABST, FRIEDRICH ROBERT. Zur Kenntniss der Derivate des 2- Iod-5- Nitro-p-Xylols mit mehrwerthigem Iod. Freiburg, 1901.

PABST, ROBERT. Beiträge zur Kenntnis der Anile. Leipzig, 1902.

PÄTZOLD, E. Beiträge zur pharmakognostischen und chemischen Kenntniss des Harzes und Holzes von Guajacum officinale L. sowie des Palobalsams. Strassburg, 1890.

PAGEL, CAMILLE-JOSEPH-JEAN-BAPTISTE-EUGÈNE. Nouveau procédé de destruction des matières organiques applicable en toxicologie. Nancy, 1900.

PAGÈS, J. Action de quelques acides aminosulfoniques sur les quinones tétrahalogénées. Montpellier, 1900.

PAHL, CARL NIEL. Pyro-fosforsyrade salter. Upsala, 1872.

PALTZER, GEORG. Ueber o-Nitrobenzyl-p-Amidoazobenzol und seine Derivate. Erlangen, 1900.

PANAJOTOW, GEORG. Ueber Ortho-para-Dimethylchinaldin, dessen Umwandlungen und über Ortho-para-Dimethylchinolin-α-Acrylsäure. (Erlangen). München, 1886.

PANSCHAUD DE BOTTENS, A. Ueber die Depolarisation der Wasserstoff- Elektrode durch Körper der aromatischen Reihe. Zürich, 1902.

PAPE, MAX. Ueber Einwirkung von Phosphorsulfobromid auf aliphatische und aromatische Amine. Rostock, 1897.

PAPIERMEISTER, SIMON. Das Verhalten der Nickelsalze gegen Quicksilber-Cyanid. Bern, 1898.

PARADIES, THEOPHIL. (1.) Zur Kenntnis des Tetrazols. [2.] Ueber die Einwirkung von Semicarbazid und Thiosemicarbazid auf Chloraceton. Göttingen, 1901.

PASDERMADJIAN, GARÉGUINE. Recherches sur une nouvelle synthèse des sulfones aromatiques. Genève, 1900.

PASTERNACK, RICHARD. Ueber das 1-Phenyl-3-methyl-5-chlorpyrazol und dessen Derivate. Rostock, 1900.

PASTOR, J. Über Propylendiamin-Metallsalze. Zürich, 1900.

PATHE, KARL. Ueber die Einwirkung von Brom auf Pseudocumol (5) Sulfonsäure in verdünnter wässriger Lösung und einige Derivate des Pseudocumols. Freiburg i. B., 1886.

PAUL, FÉLIX. Limites entre lesquelles doit varier la quantité d'acide chlorhydrique à ajouter lorsqu'on recherche ou dose les sulfates des eaux potables et des différents liquides. (Montpellier). Alais, 1899.

PAUL, JOSEF. Zum Nachweis von Aldehyd in Alkohol. Würzburg, 1896.

PAUL, T. Die Bedeutung der Ionentheorie für die physiologische Chemie. Tübingen, 1901.

PAUL, VICTOR. Ueber einige Abkömmlinge des Phtalazons und eine Synthese des 1-Aethylphtalazins. Berlin, 1899.

PAULI, HERMANN. Ueber Orthochlorbenzylhydrazin. Heidelberg, 1901.

PEDERSEN, GULLOW. Studien über Aloë. Bern, 1898.

PERLIN, RAPHAEL. I. Elektrolytische Oxydation des Anthrachinons, einiger seiner Derivate und des Phenanthrenchinons. II. Das Verhalten des Phenanthrenchinons gegen Säureanhydride, insbesondere Essigsäureanhydrid. Berlin, 1899.

PERUTZ, CONRAD. Über einige Derivate der Naphtoylorthobenzoësäure und der Acenaphtoylorthobenzoësäure. Lausanne, 1900.

PÉRY, ANDRÉ-MARIE-RAYMOND. Contribution à l'étude toxicologique de l'acide cacodylique. Bordeaux, 1901.

PESCHGES, WERNER. Beitrag zur Kenntnis der Amidine. Erlangen, 1896.

PESCHKES, MAX. Ueber einige neue Alkyl- und Acylderivate des Hydroxylamins. Bonn, 1900.

PETERMANN, ALBERT. Ueber sterische Einflüsse bei den Reaktionen halogensubstituierter Aniline. Erlangen, 1900.

PETERS, WALTER. Über die Einwirkung von Phenylhydrazin auf 1, 2, 4-Chlornitrobenzoësäure. (Zürich). Wiesbaden, 1901.

PETHYBRIDGE, GEORGE HERBERT. Beiträge zur Kenntnis der Einwirkung der anorganischen Salze auf die Entwicklung und den Bau der Pflanzen. Göttingen, 1899.

PETOW, KARL. Über die Einwirkung von Phenyl- und Tolylhydroxylamin auf aromatische Thionylamine. Rostock, 1899.

PETRI, JOHANNES. Inconstanz des Erstarrungspunktes hochschmelzender Körper und Beiträge zur Kenntnis des Schwefels. (Erlangen). Berlin, [1898].

PETRI, WILHELM. Konstitution der Iso-Purpursäure. Basel, 1900.

PETTERSSON, SV. OTTO. Bidrag till kännedomen om de selensyrade alunarterna och om selensyrans quantitativa bestämning. (Upsala). Göteborg, 1872.

PEYAU, HENRI. Zur Kenntnis des α-Methylphenylhydrazins sowie einiger Azoniumverbindungen. Rostock, 1901.

PFANHAUSER, WILHELM. Ueber das elektrochemische Verhalten des Nickelammonsulfates. Giessen, 1900.

PFEFFERMANN, FERDINAND EPHRAIM. Ueber die elektrolytische Reduction von Phenylhydrazonen und Oximen. Würzburg, 1902.

PFEIFFER, HERMANN. Die Einwirkung von Natrium und Amylalkohol auf Phenylamidoessigsäure. München, 1898.

PFEIFFER, PAUL. Molekülverbindungen der Halogenide des vierwertigen Zinns und der Zinnalkyle. Zürich, 1898.

PFEIL, KARL. Ueber die Aufschliessung der Silikate und anderer schwer zersetzbarer Mineralien mit Borsäureanhydrid. Heidelberg, 1901.

PFYL, BALTHASAR. Ueber den Zusammenhang zwischen chemischer Constitution und anaesthesierender Wirkung bei aromatischen Oxy-amido-estern. München, 1898.

PHILIPPE, ERNST. Ueber Dithiobiurete. (Freiburg i. B.). Heidelberg, 1899.

PHILLIPS, PERCY PHILIP. Beiträge zur Kenntnis der D-d-Fenchenderivate und der Fenchocarbonsäure. (Göttingen). Hildesheim, 1901.

Pickard, Robert Howson. Ueber Umlagerung von Hydroxamsäuren. Umlagerung des Benzalphenylhydrazons. Ueber Indigo-Uxim. München, 1898.

dzicki, S. von. Untersuchungen über die Bindigkeit des Bodens und über die mechanische und die physikalisch-chemische Bodenanalyse. Leipzig, 1899.

Pierstorff, Hermann. Zur Kenntnis der Styrole. Heidelberg, 1901.

Piétri, A. Étude sur les eaux minérales de la Corse. Marseille, 1898.

Pip, Wilhelm. I. Ueber die ctrische Leitfähigkeit einiger aromatischer Säuren. II. r die Farbstoffbildung aus Diazobenzolsulfosäure und salzsaurem Monoäthyl-p-toluidin. Heidelberg, 1898.

Pitsch, Moritz. Über Phosphorsuboxyd. Rostock, 1900.

rschke, Rudolf. Ueber einige Azo- und Azoxyderivate des Toluols und Benzols. (Freiburg i. B.) Bonn, 1885.

Pizzeva, C. Sur quelques acétats aromatiques. Lyon, 1900.

Plack, Georg. Beiträge zur Kenntnis der substituierten β-(2)-Naphtochinoline und des Chrysolins (Naphtophenantrolin), eines aus dem Amido-β-(2)-Naphtochinolin durch die Skraup'sche Synthese dargestellten Condensationsprodukts. Freiburg i. B., 1899.

Platsch, Max. Über die Umsetzung von Thonerde-, Chrom- und Eisenoxalaten mit Metallchloriden sowie über zinnoxalsaure Salze. (Bern). Berlin, 1898.

Plücker, Wilhelm. Beiträge zur Kenntnis des meta- Methylchinolins und des ana- Methylchinolins sowie der Methylnaphtaline. (Freiburg i. B.) Camen, 1899.

Pluss, Otto. Recherches sur les acides α-sulfo, α-oxy et α-nitrophtaliques et sur un produit dinitré de l'acide 1.5-naphtosulfonique. Genève, 1901.

Podrajanski, Leo. Die Einwirkung des Furols auf Acetophenon. Bern, 1898.

HL, WILLIBALD. Über o-Nitrobenzyl-p-amidobenzoesäure und ihre Derivate. Erlangen, 1901.

ITEVIN, H. La saccharification de l'amidon par la diastase du malt. Paris, 1899.

LLAK, L. Gasanalytische Beiträge zur Kenntnis des Acetylens und Stickoxyduls. Zürich, 1902.

LLITZER, RICHARD. Über die Einwirkung von Schwefelsäuredimethylester auf Azine. (Basel). Zürich, 1900.

MMIER, PIERRE. Contribution à la connaissance du musc artificiel. (Bern). Mulhouse, 1897.

PPENBERG, OTTO. Zur Kenntniss der Pyridazine. Berlin, 1900.

RTMANN. BEAT. Untersuchung über Derivate des Isoeugenols. (Rostock). Stuttgart, 1897.

RTNER, EDUARD. Ueber die Hydrazide und Azide der Meta- und Para-Brombenzoesäure. Kiel, 1896.

TTEVIN, HENRI. La saccharification de l'amidon par la diastase du malt. Sceaux, 1899.

UGET, ISIDORE. Recherches sur les sulfo- et les sélénio-antimonites. Paris, 1899.

ALL, FRIEDRICH. Ueber die Einwirkung von Monochloracetal auf sekundäre aliphatische Amine. Rostock, 1897.

ANDTL, WILHELM A. A. Ueber einige neue Bestandteile des Euxenits. München, 1901.

AUSE, HUGO. Über Verbindungen der Tellursäure mit Jodaten, Phosphaten und Arsenaten. (München). Leipzig, 1901.

EISWERK, E. Ueber die Einwirkung aromatischer Amine und des Natriummalonesters auf dibromsubstituirte Säuren. Basel, 1902.

ENTICE, DAVID. 1. Die Einwirkung gewisser saurer Oxyde auf Salze der Oxysäuren. 2. Beiträge zur Kenntnis der Friedel-Crafts'schen Reaktion. Heidelberg, 1901.

Preu, Friedrich. Beiträge zur Kenntnis der Bornylamine. Leipzig, 1902.

Preuner, Gerhard. Ueber die Bedeutung colloidaler Salze für den Färbeprozess. Heidelberg, 1898.

Preuss, Heinrich. Beiträge zur Kentniss einiger Hydroxylaminverbindungen der Chinolinsäure und Ueberführung der letzteren in Amidopyridin. Königsberg in Pr., 1895.

Price, Thomas Slater. Die Reaktion zwischen Kaliumpersulfat und Jodkalium und Katalyse bei derselben. Leipzig, 1898.

Pringsheim, Hans. Ueber das Hy[illegible]razid der Pentamethylendicarbonsäure. Heidelberg, 1901.

Pritzkow, Wilhelm. Ueber den a-Aminocampher und seine Umwandlungsprodukte. Jena, 1899.

Proelss, Hans. Beiträge zum Nachweis von Alkaloiden, Glycosiden und Bitterstoffen bei forensisch-chemischen Arbeiten. (München). Erlangen, 1899.

Propach, Wilhelm. Über die 1,3-Dibenzoylglutarsäurediäthylester, ihre Reduktions- und Verseifungsprodukte. Leipzig, 1902.

Propfe, Alexander. Ueber die Reduktion des p-Tolylazin. Heidelberg, 1900.

Proschko, Franz. Zur Kenntniss des para-Aethylchinolins. Freiburg i. B., 1900.

Pugin, Michael Heinrich. Ueber das Hydrazid der Picolinsäure und das a-Amidopyridin. Heidelberg, 1901.

Puls, Karl. Über einige p-Toluyl-Methyl-Phenyläther sowie über das p-Toluylcarbinol und das Chlor-Di-p-Tolacyl. Rostock, 1898.

Purfürst, Hans. Ueber Umwandlungsprodukte des α-Nitro-β-naphtylamins. Marburg, 1902.

Purucker, Franz Martin. Zur Kenntnis der Synthesen mit Hülfe von Blausäure. (Heidelberg). Hammelburg, 1900.

Putensen, Otto. Beiträge zur Kenntniss der Cyanursäure-Verbindungen. Freiburg i. B., 1887.

QUEDENFELDT, ERWIN. Ueber symmetrisches Dibenzylhydrazin. (Diphenylhydrazimethylen). Kiel, 1896.

RAABE, GUSTAV. Beiträge zur Kenntnis der Zersetzung der zweifach gebromten Bernsteinsäuren durch Basen. Königsberg i. Pr., (1899).

RABE, PAUL. Ueber isomere Benzylidenbisacetessigester. Jena, 1900.

RABE, WILHELM OTTO. Der Übergang von zweiwertigem in vierwertigen Schwefel. München, 1899.

RABEN, EMIL. Beiträge zur Kenntniss der Acetalisirung bei den Aldehyden und Ketonen. Kiel, 1902.

RACHMILEWITZ, NACHMON. Ueber einige Derivate der Benzhydroxamsäure. Königsberg, 1900.

RACOVITZA, NICOLAS. Recherches dans la série de la phénylnaphtacridine. Genève, 1900.

RAEDER, HEINRICH. Versuche zur Herstellung von Naphtoyl-benzoyl-methan und seiner Isomeren. Leipzig, 1902.

RAHTJEN, ARNOLD. Ueber die Einwirkung von Aether und Aluminiumchlorid auf aromatische Verbindungen. Heidelberg, 1900.

RAILLARD, ALFRED. Ueber Azammoniumverbindungen. Basel, 1897.

RAMPACHER, EBERHARD HERMANN. Über Jodoso-, Jodo- und Jodiniumverbindungen des Para-Tertiärbutyljodbenzols. Freiburg i. B., 1900.

RANDEBROCK, AUGUST. Zur Kenntnis des p-Chlor-m-bromanilins und des p-Chlor-ana-bromchinolins. Freiburg i. B., 1900.

RANSOHOFF, MAX. Ueber die Verteilung des Absorptionsvermögens einiger einfacherer Kohlenstoffverbindungen im ultraroten Gebiete des Spektrums. Berlin, 1896.

RAPP, R. Beziehungen des Sauerstoffs zur Gährthätigkeit der lebenden Hefezellen. München, 1898.

RAPPEPORT, THEODOR. I. Beitrag zur Kenntnis der Pyrimidine und Kyanidine. II. Versuch zur Darstellung des Orthonitrobenzimidoaethers. (Bern). Berlin, 1900.

RASSMANN, WILHELM. Ueber Einwirkung von Phosphoroxychlorid auf 3 Phenylpyrazolon sowie Darstellung von Iso-, Anti- und Thiopyrin. (Rostock). Freiberg, 1902.

RATH, WILHELM. Umwandlung penta- und hexacyklischer Ketone in Basen der Pyridinreihe. (Göttingen). Berlin, 1900.

RATZLAFF, ERNST. Über die Einwirkung primärer und sekundärer Amine auf Phosphoroxychlorid und Äthoxylphosphoroxychlorid. Rostock, 1901.

RAUCH, OTTO. Einfluss fettreicher und fettarmer Ernährung auf die Milchsekretion [illegible] uf die Beschaffenheit des Milchfettes. Leipzig, 1898.

RAVINSON, MOÏSE. Sur un isomère de la rosinduline. Genève, 1899.

RECHNITZ, HEINRICH. Ueberführung von Aethylmalonsäurehydrazid in Propylaldehyd und die Umwandlung des Propylidenazins in (4) Methyl- (5) Aethylpyrazolin. Heidelberg, 1901.

REDEN, ULRICH VON. Beiträge zur Kenntnis der o-Diamidodiphensäure. (Tübingen). Hamburg, 1898.

REDENZ, PAUL. Ueber das Antimonpentafluorid und einige Doppelsalze mit organischen Basen. Freiburg, (Schweiz), 1897.

REDLICH, BERTHOLD. Ueber die Beweglichkeit von Cadmium in wässrigen Lösungen seines Sulfates und Iodides. Berlin, 1899.

REHLEN, HANS. Über den Einfluss von anorganischen in organische Moleküle eingeführten Atomgruppen auf ihr optisches Drehungsvermögen. Zürich, 1900.

REHSE, WALTER. Ueber Oxyphosphazo-Verbindungen der aromatischen Reihe. Rostock, 1898.

REICH, RICHARD. Beitrag zur Kenntnis der Filixgerbsäure. Leipzig, 1900.

REICHEL, JOHANNES. Synthetische und analytische Versuche über das Pseudocumenoltribromid und seine Derivate. Heidelberg, 1899.

REIDE, R. Beitrag zur Kenntniss der Filixgerbsäure. Leipzig, 1900.

RICHTER, BERNHARD. Ueber die Bestimmung des Feuchtigkeitsgehaltes der Luft in Lehrsälen mit Berücksichtigung des Feuchtigkeitsgehaltes der Luft im Freien. Rostock, 1898.

RICHTER, ERNST. Über aromatische Borbromide, deren Derivate und über Borbenzoësäure. Rostock, 1900.

RICHTER, OTTO. Über einige neue Derivate des Cumarons. Rostock, 1898.

RICHTER, RICHARD. Über die Einwirkung von Chlor und Brom auf p-Amidoacetophenon. Marburg. 1902.

RICHTER, WOLDEMAR. Über Phenole und Pseudo-Phenole. (Heidelberg). Leipzig, 1900.

RIEBENSAHM, WALTHER. Ueber die Zersetzung der zweifach gebromten Bernsteinsäuren durch Basen und Wasser. Königsberg in Pr., 1895.

RIEDEL, ADOLF. Ueber die Einwirkung von Hydrazinhydrat auf 3, 5 Dinitrobenzoësäure-Aethylester. Heidelberg, 1902.

RIEDEL, FRANK A. Ueber die Einwirkung von Cyanessigester bezw. Benzylcyanid auf Aldehyde, Ketone, Aldehydammoniak, etc. (Rostock). Leipzig, 1896.

RIEGEL, MAXIMILIAN. Ueber die Einwirkung von Phenolen auf Pyro- und Orthophosphorsäurechlorid. Rostock, 1896.

RIEGER, EMIL. Ueber die Existenz complexer Jonen in Doppelsalzen auf Grund von Ueberführungsbestimmungen. Breslau, 1901.

RIESENFELD, HANS. Über das Lösungsvermögen von Salzlösungen für Ammoniak nach Messungen seines Partialdrucks. Ein Beitrag zur Theorie d. Lösungsvorgangs. (Breslau). Leipzig, 1902.

RIETZSCH, ARWED. Über die thermische und elektrische Leitfähigkeit von Kupfer-Phosphor und Kupfer-Arsen. Leipzig, 1900.

RIFFART, JOSEPH. Ueber Einwirkung von Aethylnitrit auf Amidoacetylaceton. Heidelberg, 1901.

RIGAUD, MORITZ. Über β-substituierte N-Methyl-Pyridone und Dimethyl-N-Methyl-Chinolon. Erlangen, 1902.

Rimbach, Carl. Ueber die quantitative Bestimmung der Pentosen mittelst der Phloroglucinmethode und über das Vorkommen der Pentosane in Naturprodukten. Göttingen, 1898.

Rinckenberger, Alfred. Ueber Nitroform. Würzburg, 1900.

Rindell, A. Untersuchungen über die Löslichkeit einiger Kalkphosphate. Helsingfors, 1899.

Rindell, Arth. Om utspädd saltsyras inverkan på mjölksocker. Helsingfors, 1881.

Rising, Adolf. Über Einwirkung von p-Toluolsulfinsäure auf Nitrosobenzol und auf β-Phenylhydroxylamin. Über Mesitylhydroxylamin. Basel, 1900.

Rissom, Johannes. Untersuchungen über den Stickstoffwasserstoff N_3H. (Bonn). Kiel, 1898.

Ritter, E. Beiträge zur Kenntniss der Cholesterine und der Methoden, die zu ihrer Abscheidung aus den Fetten und zu ihrer quantitativen Bestimmung verwendbar sind. Zürich, 1902.

Rittershausen, Friedrich. Zur Kenntnis der Quecksilberammoniakverbindungen. München, 1899.

Roberti, Victor v. Über die Zucht der Milchkuh. Eine Studie aus d. Praxis. (Breslau). Merseburg, 1902.

Robertson, George. Ueber die Verseifungs- und Reduktionsprodukte des Phenyldibenzoylglutarsäurediäthylesters. Leipzig, 1899.

Robisch, Alfred Georg. Ueber einige unsymmetrische Alkylphenylhydrazine. Rostock, 1897.

Rochat, G. F. Bijdrage tot de kennis van het werkzame bestanddeel der ricine. Utrecht, 1902.

Rocholl, Max. Über die Einwirkung von Phosphortrichlorid und Aluminiumchlorid auf p-Chloranisol sowie über die O-Chlorphosphine und O-Oxychlorphosphine des p-Chlorphenols. (Lausanne). Leipzig, 1899.

Rodatz, Wilhelm. Über Fluorescein und einige Derivate. Basel, 1901.

Rodrian, Alfred. Synthesen mit Hilfe von Blausäure. Heidelberg, 1900.

Roeber, Curt. Beitrag zur Kenntnis einiger aromatischer N-Phosphine. Rostock, 1896.

Roeder, Georg. [I.] Ueber Pulegon und Isopulegon. [II.] Einwirkung einiger Amine auf α-Chlorbutanon. Berlin, 1899.

Roeder, Paul. Recherches s[illegible]ne et la phénylhydrazone de la xanthone. (Genève). [illegible]ıne, 1901.

Röhm, Otto. Ueber Polymerisationsprodukte der Akrylsäure. Tübingen, 1901.

Röhmer, Hans. Ueber Kondensationen des Furfurals und Furfuracroleins. Rostock, 1898.

Roelig, Hermann. Beiträge zur Kenntnis der seltenen Erden des Cerits. München, 1898.

Roerdansz, Walter. Beitrag zur Kenntnis durch Sonnenlicht bewirkter chemischer Synthesen. Königsberg, 1901.

Rössler, Hubert. Über einige neue Peri-Naphtalinderivate. Bonn, 1902.

Rössler, Paul. Ueber einige Derivate des Aethanolamins. Jena, 1902.

Rössner, Heinrich. Ueber das Dibromid der Phenylcinnamenylacrylsäure. (München). Giessen, 1899.

Rötheli, Emil. Zur Theorie des Färbeprozesses. Zürich, 1898.

Röttele, Karl. Studien über die bromierten Derivate des p-Nitro- und p-Amido-chinolins. Freiburg i. B., 1900.

Roggatz, Heinrich. Ueber Jodoso-, Jodo- und Jodiniumverbindungen, die sich von Jod- und Chlorjodmesitylen ableiten. Freiburg i. B., 1899.

Rohde, Albert. Beiträge zur Kenntnis gechlorter Keto- R- Pentene. Marburg, 1896.

Rohde, E. Untersuchungen über Zusammensetzung, Nährwerth und specifische Nebenwirkungen einiger russischer Oelkuchen. Königsberg, 1901.

Rohmer, M. Eine Umlagerung des Methylen-di-o-nitrilanilins. Berlin, 1900.

Rohrbaech, Ernst. Ueber Telluro-Phenolaether und Dichlortelluroketone. Rostock, 1900.

Rohrmann, Erich. Ueber as p-Toluylhydrazinoessigester und einige Derivate. (Basel). Berlin, 1897.

Rojahn, Wilhelm. Über Nitrosopinen. (Göttingen). Hildesheim, 1900.

Romeyer, Henri. Dosage de l'aldéhyde formique. Lyon, 1902.

Rongger, N. Ueber die Bestandtheile der Samen von Picea excelsa (Link) und über die Spaltungsproducte der aus diesen Samen darstellbaren Proteinstoffe. Zürich, 1898.

Ronus, M. Ueber Cineolsäure. Basel, 1901.

Ropp, Alexander von der. Eine Untersuchung über die Oxydation des Platins durch Salpetersäure, wenn seine Legirungen mit Silber und anderen Metallen mit dieser Säure behandelt werden, und über die Löslichkeit der entstandenen Platinverbindungen in Wasser, Salzsäure, schwefliger Säure und anderen Lösungsmitteln. Eine neue Methode zur Trennung d. Platins von Gold u. d. Platinmetallen. Berlin, 1900.

Ropp, Paul von der. Ueber einige Derivate des Cumols. Rostock, 1898.

Rose, Johannes Adolf. Beiträge zur Kenntniss der Borsäure und über eine direkte gewichtsanalytische Bestimmung derselben. (Erlangen). Bonn a. Rh., 1902.

Rosebrock, August. Untersuchungen über das o-p-Dimethylchinolin und das α-o-Dimethylchinolin. Freiburg, i. B., 1878.

Rosenberg, Joh. Ol. Undersökningar angående qväfoxidens föreningar med svafveljern. Lund, 1865.

ROSENSTEIN, W. Contribution à l'étude des relations entre la constitution chimique et l'action physiologique des dérivés alkylés des alkaloïdes. Paris, 1900.

ROSSBACH, GEORG. Über Triketone. Bern, 1898.

ROSSBACH, JOSEPH. Einwirkung von Ammoniak auf Dibromtriacetonamin. (Basel). Düsseldorf, 1899.

ROSSÉE, WILHELM. Zur Kenntnis des p-Amidobenzylalkohols. Erlangen, 1896.

ROTH, EMIL. Ueber o-Nitro-Phenyl-α-Picolyl-Alkin und einige seiner Derivate. Ueber lyl-Alkin. Breslau, 1900.

ROTH, ERNST. Ueber die wirk ; von Essigsäureanhydrid auf tricarballylsaures assburg, 1898.

ROTH, WALTER. Ueber das ylpiperidin ar. Tetrahydro-β-naphtylpipe yl-α-pipecolin. Breslau, 1896.

ROTTER, ADOLF. Da lphenylarsin, das m-Dixylylphenylarsin und . Rostock, 1902.

ROUCHY, CHARLES. Recherches sur la cristallisation de l'oxyhémoglobine et de l'hémoglobine. Paris, 1899.

ROVAART, HENDRIK VAN DE. Ueber Bromderivate des as. o-Xylenols. Heidelberg, 1898.

RÓZYCKI, ANTONI. Über einige Chalkonderivate und Synthese des 2-Brom-3-Aethoxy-3'-Nitroflavons. Bern, 1900.

RÜBEL, EDUARD A. Über Derivate des p-Tolyl-α-Naphtylamins. Zürich, 1901.

RÜCKER, HERMANN VON. Über die Einwirkung von Alkali-Persulfat auf Para- und Meta-Oxybenzoësäure. Lausanne, 1900.

RÜCKER, KARL. Untersuchungen über komplexe Kobaltammoniaksalze. (Zürich). Breslau, 1898.

RÜHL, FRIEDRICH. Quantitative Trennungen mit salzsaurem Hydroxylamin. Heidelberg, 1901.

RÜLKE, KURT. Über Verkettungsprodukte des Hydrazobenzols und seiner Derivate mit Aldehyden. Leipzig, 1901.

Rüst, E. Beiträge zur Kenntnis der Nitroaldehydazone und ihrer Derivate und zur Umlagerung von Nitroparaffinen. Zürich, 1901.

Rumpf, Otto. Ueber sulfoxyarsenate. (München). Leipzig, 1897.

Rupp, Philip. Zur Kenntniss der aromatischen Aldehyde. Freiburg, 1901.

Ruppert, Eduard. Über Orthoform und Orthoform neu. München, 1902.

Russwurm, Karl. Ueber die Produkte der Condensation des Desoxybenzoins, des Dibenzylketons, des Benzylidenacetophenons und des Benzils mit Bernsteinsäurediaethylester unter dem Einfluss des Natriumaethylates. Leipzig, 1899.

Rust, Ernst August. Ueber einige Tellurderivate von Phenoläthern und Ketonen. Rostock, 1897.

Ryn, Wilhelm van. Die Stereochemie des Stickstoffs. Theoretische Arbeit über den gegenwärtigen Stand dieses Untersuchungsgebietes mit praktischen Untersuchungen zur Auffindung neuer Isomeriefälle bei Stickstoffverbindungen. Zürich, 1897.

Saame, Otto. Ueber die elektrochemische Reduction der Nitrobenzonitrile. Giessen, 1900.

Sacher, J. F. Ueber die Zersetzungsspannung von geschmolzenem Natriumhydroxyd und Bleichlorid. Zürich, 1901.

Sachs, Arthur. Ueber einige mit Hilfe des Methylacetessigesters dargestellte Pyridinderivate. Breslau, 1898.

Sachs, Franz. Untersuchungen über Derivate alkylierter Phtalimide. Berlin, 1898.

Sack, Johannes. Untersuchungen einiger Pflanzenstoffe (Bresk, Roucheria-Rinde und Fliederbeeren) auf darin enthaltene Bestandtheile. Göttingen, 1901.

Sackur, Otto. Über den Einfluss gleichioniger Zusätze auf die elektromotorische Kraft von Flüssigkeitsketten. Ein Beitrag zur Kenntnis d. Verhaltens starker Elektrolyte. (Breslau). Leipzig, 1901.

Salcher, Richard. Studien über die Aminolyse. (Heidelberg). Wien, 1899.

Salis, Reinhard von. Synthese des 3-2'-Dioxyflavons. Bern, 1899.

Salomon, Harry. Über die Einwirkung von Benzoesäureanhydrid auf tricarballylsaures Natrium. Strassburg, 1899.

Salzer, F. Ueber complexe Kobaltammoniake. Zürich, 1901.

Samelson, Minna. Über Permanganmolybdate. Leipzig, 1900.

Samelson, Siegfried. Ueber Dimethylmetatoluidinazobenzol und verwandte Körper. Breslau, 1900.

Samson, E. Synthetische Versuche in der Indigo-Reihe. Berlin, 1900.

Samter, Victor. Ueber Thorium [illegible] pelsalze. Berlin, 1901.

Samtleben, Adolf. Zur [illegible] einiger Perhaloïde. (Basel). Leipzig, 1899.

Samuel, Ernst. Zur Kenntnis [illegible] Campherchinons. München, 1899.

Sand, Henry J. S. Zur [illegible] s von Alphylnitrosokörpern. Zürich, 1898.

Sand, Julius. Organische Quecksilber-Verbindungen. München, 1900.

Sander, W. Beitrag zur Kenntniss der Additionsreactionen des Dicyans. Berlin, 1900.

Sanders, Nicolaas Albertus Maria. Ueber die Producte der Einwirkung von Brom auf Fettketone. (Göttingen). Leiden, 1901.

Sansone, A. Printing of Cotton Fabrics, comprising Calico Bleaching, Printing, Dyeing. Revised edition. London, 1901. Ill.

Santesson, Carl Ol. Birger. Om några af metallen niobiums föreningar. Upsala, 1875.

Sarcos, O. Les eaux d'alimentation de la ville de Carcassonne. Leur histoire. Leur rôle au point de vue hygiénique. (Montpellier). Carcassonne, 1900.

Sarghel, J. Ueber die Elektrolyse der Bromide der Erdalkalien. Berlin, 1899.

SASSERATH, EDWARD ALBERT. Beiträge zur Kenntniss des Osmiums. Berlin, 1901.

SAULMANN, FRITZ. Ueber einige Thiazoline und Oxazoline. (Erlangen). Berlin, 1899.

SAUVAGE, ROGER-JEAN-PHILADELPHE. Action du chlorure de benzoyle sur les naphtols en présence du chlorure d'aluminium. (Bordeaux). Poitiers, 1901.

SCAINI, C. Variazione del calore di dissoluzione dei sali nelle loro soluzioni. Pavia, 1899.

SCHAAL, MAX. Über basische Cumarine. (Tübingen). Strassburg, 1898.

SCHAEFER, KURT. Uber das γ-Amidobutylaldehydacetal und seine Derivate. Berlin, (1902).

SCHALHORN, THEODOR. Über einige N-Chlorphosphine der aliphatischen secundären Amine. Rostock, 1899.

SCHALK, BERTHOLD. Zur Kenntnis einiger Derivate des Amidonaphtols 1 . 2 und Amidonaphtols 2 . 1. Basel, 1900.

SCHALL, ADOLF. Über die Einwirkung von Phosphoroxybromid auf secundäre aliphatische Amine. (Rostock). Ulm, 1898.

SCHALL, MAX. Ueber cyclische Harnstoffe und Guanidinderivate des Diacetonamins. (Erlangen). Berlin, 1899.

SCHAPIRO, BENJAMIN. Beiträge zur Kenntnis des Acetoxims. Königsberg, 1900.

SCHARPENACK, JULIUS. Ueber Oxydations-Produkte des Carvons und des Bihydro-Carvons. Göttingen, 1895.

SCHAUM, ALWIN. Über β-Aminopyrrolidine. Basel, 1901.

SCHAUMANN, GEORGE. Beiträge zur Jodometrie der Superoxyde. Freiburg i. B., 1901.

SCHAUMANN, LUDWIG. Über β-Benzyltetrahydroisochinolin und demselben nahestehende Körper, nebst Beiträgen zur Kenntnis des α-Benzylisochinolins. Kiel, 1902.

Schauwecker, Otto. [1.] Zur Constitution des Citronellals und über den Halbaldehyd der β-Methyladipinsäure. [2.] Beiträge zur Kenntnis des Pulegons und Isopulegons. Berlin, 1901.

Scheda, Kurt. Einwirkungsproducte von Pyridin und Trimethylamin, Chinolin und Isochinolin auf Bromacetanilid und Bromacetophenon. Marburg, 1899.

Schedler, Arnold. Über eine neue Synthese des symmetrischen Tetraamidobenzols und einiger Derivate desselben. Basel, 1897.

Scheiber, Johannes. Ueber N-α-Naphtylhydroxylamin und das Verhalten von N-Aryl[illegible]laminen gegenüber Ketonen. Leipzig, 1902.

Scheij, L. T. C. Over synthetisch bereide neutrale Glycerine- Esters- Triacylinen van verzadigde eenbasische zuren met even aantal C. atomen. Leiden, 1899.

Schellen, Antonius. Ueber die Gültigkeit des Bunsen-Roscoe'schen Gesetzes für Bromsilbergelatine. (Rostock). Münster, 1898.

Schepper, D. W. Yssel de. Ueber Oxyphenylphtalide und ihre Ueberführung in Anthracenderivate. Freiburg, (Schweiz), 1898.

Scheuer, Wilhelm. 1. Über die Trennung und Bestimmung flüchtiger Fettsäuren. 2. Die Analyse von Graukalk. 3. Die Beurteilung und Unterscheidung der verdünnten Essigsäuren des Handels. (München). Linden, 1902.

Scheuermann, Beda. Über die Kondensation von Furol mit Bernsteinsäure. Basel, 1901.

Scheutz, Thor. Über alkylierte Amidobenzolsulfosäuren und Metamidophenole. Zürich, 1901.

Scheven, Wilhelm. Über einige aromatische Brom- und Chlorketone. Rostock, 1898.

Schieffer, Heinrich. Beitrag zur Kenntniss des Indens und des β-Hydrindons. (Heidelberg). Bonn, 1898.

Schiess, Emanuel. Über einige neue Formazylverbindungen. Basel, 1900.

SCHIESS, JOHANN HEINRICH. Über benzylierte Acetondicarbonsäuren. Basel, 1901.

SCHIFF, H. Ueber die Einwirkung von Diazoverbindungen auf Hydrazine. Berlin, 1900.

SCHIFFER, EMIL CHR. (I.) Das Verhalten der Ceritoxyde gegen Aluminium bei hohen Temperaturen. (II.) Chemische Untersuchung eines körnigen Dolomits aus dem Gneiss von Wattegama in Ceylon. München, 1900.

SCHILLING, BRUNO. Zur Kenntnis der Griess'schen γ-Diamidobenzoësäure und über die Verbindungen derselben mit Zuckerarten. München, 1899.

SCHILLING, EUGEN. Untersuchungen über Stickstoffgehalt und Ammoniakproduction verschiedener Gaskohlen. (Erlangen). München, 1887.

SCHILLING, JOHANNES. Beiträge zur Chemie des Thoriums. (Heidelberg). *n. p.* [1902].

SCHILLING, RUDOLF VON. Die elektrolytische Leitfähigkeit der Hydroresorcine und δ Ketonsäuren. Halle a. S., 1899.

SCHINDLER, PAUL. Ueber die Einwirkung von Thionylchlorid auf einige tertiäre und sekundäre Amine. Rostock, 1899.

SCHLEGELMILCH, FRIEDRICH. 1. Über Doppelsalze des Jodtrichlorids mit Chloriden zweiwertiger Metalle. 2. Über Doppelsalze des Antimonpentachlorids. (München). Leipzig, 1902.

SCHLEICHER, FRANZ. Beiträge zur Kenntnis alkylierter Bernsteinsäuren. (Heidelberg). Würzburg, 1900.

SCHLENK, OSKAR. Zur Kenntnis der Phenylhydrazone. München, 1900.

SCHLENKER, JULIUS. Ueber das 4. 5. Dimethylpyrimidin. Berlin, 1900.

SCHLESINGER, ALFRED. Ueber die Darstellung von Isopyrazolderivaten aus Diacetbernsteinsäureester und aromatischen Diazoverbindungen. Tübingen, 1900.

SCHLEUSSNER, CARL. Ueber Diamidophenylosotriazol. (München). Leipzig, 1897.

SCHLINCK, JULIUS. Zur Kenntnis des Pyrrolidins. (Giessen). Mannheim, 1899.

SCHLÖSSER, PETER RICH. NORB. Ueber die Derivate des α-Jodosonaphtalins, des α-Naphtylphenyljodiniumhydroxyds und über das p-p-Dijod-α-α-dinaphtyl. Freiburg i. B., 1899.

SCHLOSSBERG, HILEL. Zur Verwendung des Wasserstoffsuperoxyds in der quantitativen Analyse der Schwermetalle. Berlin, (1902).

SCHLOSSBERG, ISRAEL. [illegible] enntniss einiger Racemkörper. Breslau, 1900.

SCHLOSSBERG, SIEGFRIED SAMUEL. Ueber das γ-Brom-α-Indon und einige seiner Derivate. Berlin, 1901.

SCHLOTTERBECK, FRITZ. Über das Anilinazo-acetylaceton und seine Abkömmlinge. Ein Beitrag zur Kenntnis der 'Gemischten Azoverbindungen.' Tübingen, 1902.

SCHMIDT, AUGUST. Ueber eine Entgiftung durch Abspaltung der Methyl- und Aethylgruppe im Organismus. Heidelberg, 1901.

SCHMIDT, HERMANN. Ueber einige Oxyamido- und Oxyamidochlor-Ketone der aromatischen Reihe. Rostock, 1900.

SCHMIDT, HUGO. Ueber die Einwirkung von Chloracetal auf einige Phenole und die Synthese von Cumaron-Homologen. Rostock, 1897.

SCHMIDT, OTTO. Ueber die Constitution der Einwirkungsprodukte von Diazoverbindungen auf primären Nitrokörper und über stereoisomere Hydrazone. Bonn, 1898.

SCHMIDT, OTTO. Zur Kenntnis der Einwirkung von Phosphorpentachlorid auf Salicylsäure. Heidelberg, 1898.

SCHMIERER, FRIEDRICH. Über Jodoso-, Jodo- und Jodiniumverbindungen des s-Jod-m-Xylols. Freiburg, i. B., 1901.

SCHMITT, FRITZ. Ueber Metalltrennungen in einem Chlorwasserstoffstrome. Heidelberg, 1899.

SCHMITZ, CARL. Ueber die Darstellung von Pinakonen durch Reduktion aromatischer Ketone. Giessen, 1896.

SCHMIZ, MAX. Ueber einige Derivate des Monoäthylbenzols. Rostock, 1898.

SCHMOOK, HUGO. Ueber ein Kondensationsprodukt des o-Amidobenzaldehyds und eine neue Synthese des Py_a-Py_a-Dichinolyls. Rostock, 1898.

SCHNEIDER, ALBERT. Ueber Amide dreibasischer organischer Säuren der Fettreihe. Berlin, 1887.

SCHNEIDER, FRIEDRICH. Beiträge zur Kenntnis der krystallinischen Flüssigkeiten. Marburg, 1899.

SCHNEIDER, GEORG. Ueber die Einwirkung von Monochloracetal auf Diisobutylamin und Piperidin. Rostock, 1898.

SCHNEIDER, GUSTAV. Ueber Kondensationen von Formaldehyd mit Acetylaceton. Heidelberg, 1900.

SCHNEIDER, PAUL. Ueber Alkylderivate des Aethylendiamins. Breslau, 1896.

SCHNEIDER, SEBASTIAN. Zur Kenntnis der Isodithiobiazolone. Erlangen, 1902.

SCHNEIDER, WILHELM. Ueber die durch Einwirkung von Chlor auf Toluidin entstehenden Ketochloride. Marburg, 1896.

SCHNITZSPAHN, KARL. Ueber die Konstitution des Cyanwasserstoffsesquichlorhydrates und dessen synthetische Verwendung. Heidelberg, 1898.

SCHOB, ARTHUR. Ueber γ-Methylisoxazol-α-carbonsäure. Kiel, 1899.

SCHOELLER, WALTER. Zur Constitution des Campherphorons. Greifswald, 1902.

SCHOEN, MARCEL. Détermination de la constitution des oximes résultant de l'action du chlorhydrate d'hydroxylamine sur les thymoquinones monohalogénées. (Genève). Bâle, 1899.

SCHÖNBERG, PAUL. Ueber die Wärmeleitung und ihre Abhängigkeit von der Temperatur in den Dämpfen von Benzol und Schwefelkohlenstoff. Jena, 1890.

Schöne, Albert. Zur Kenntnis der Rübenmelassen und der Pentosane. Rostock, 1899.

Schönermark, Friedrich. Zur Charakteristik des β-Benzylhydroxylamins. Erlangen, 1895.

Schoerk, Walther. Ueber Monochloräpfelsäure und Oxyfumarsäure. Königsberg i. Pr., 1901.

Scholl, H. Ueber Veränderungen von Iodsilber im Licht und dem Daguerre'schen Process. (Giessen). Leipzig, 1899.

Scholvien, Karl Robert. Ueber odidchlorid, Jodoso- und Jodiniumverbindungen, die sich ana-Jodchinolin ableiten. Freiburg i. B., 1900.

Schomann, Robert. Ueber die Brommesaconsäure. Königsberg in Pr., 1896.

Schoonjans, Albert. Ueber einige Benzoyl- und Anisoyl-Acetessigesterderivate. Erlangen, 1897.

Schottländer, Friedrich. Ein Beitrag zur Kenntnis des 4,5-Diamino-2,6-dioxypyrimidins. Berlin, (1902).

Schrackenberger, Paul. Ueber die Einwirkung von Monochloraceton auf Naphtole und die Synthese zweier isomeren Methylnaphtofurfurane. Rostock, 1897.

Schrader, Walther. Über zwei neue Nitrotoluidin-Sulfosäuren und einige Derivate derselben. (Basel). Braunschweig, 1898.

Schröder, August. Beiträge zur Kenntniss des Citrals und Citronellals. Halle a. S., 1899.

Schroeder, Ernst C. Zur Kenntnis der Verbindungen des Selens und des Tellurs. (München). Fürth, 1898.

Schröder, Franz Gustav. Beitrag zur Kenntnis der geometrisch isomeren α-Methylzimmtsäuren und ω-Methyl-ω-Bromstyrole. Leipzig, 1898.

Schröder, Heinrich. 1. 2-Pyronderivate aus acetylierten Pyrazolinen. Berlin, (1902).

SCHROEDER, JOHANNES. Reaktionen von Metallsalzen in Pyridin. Giessen, 1901.

SCHRÖDER, ROBERT JOHANN. Ueber die Einwirkung von Monochloracetal auf einige isomere Xylenole und Aethylphenol, sowie über die Synthese einiger homologen Cumarone. Rostock, 1898.

SCHRÖDTER, MAX. Nitrosoverbindungen aromatischer Aminocarbonsäuren. Halle a. S., 1902.

SCHROEMBGENS, JOSEF. Über die Einwirkung von Benzylamin auf chlorierte Phosphorverbindungen. Rostock, 1900.

SCHROTH, GEORG. Zur Kenntnis synthetisch dargestellter Nitrometa- und ana- toluchinoline sowie einiger ihrer Derivate. Freiburg i. B., 1898.

SCHUBART, PHILIPP. Synthese isomerer Indigodisulfosäuren. Halle a. S., 1902.

SCHUCHT, L. Ueber Phosphate. Leipzig, 1900.

SCHÜLLER, FELIX. Ueber die Umwandlung der Kohlehvdrate während der Jahresperiode in den Halbsträuchern und perennierenden Kräutern. Leipzig, 1898.

SCHÜMANN, C. Untersuchungen über Phenole und Pseudophenole. Heidelberg, 1901.

SCHÜMANN, MAX. Zur Kenntnis des Diazotierungs-Processes und der Verbindungen R. N_2 O H. Würzburg, 1899.

SCHÜTT, BRUNO. Zur chemischen Charakteristik der Bestandteile der Chinarinde. Ein Beitrag zur Kenntnis des in d. Chinarinden vorkommenden Gerbstoffs. (München). Hannover, 1900.

SCHÜTTE, OTTO. Ueber die Verbindungen der Titansäure. Berlin, 1899.

SCHÜTTE, WENZEL. Ueber die Einwirkung von Pyro- und Ortho-phosphorsäurechlorid auf sekundäre aliphatische Amine sowie auf Piperidin und Tetrahydrochinolin. Rostock, 1897.

SCHÜTZ, MAX. Ueber die Nitrirung des Resorcylaldehyds. Ueber einige Derivate des Saligenins. Synthese von 3-Bromphenanthrenchinon. Berlin, 1901.

SCHULENBERG, HEINRICH. Beiträge zur Kenntnis des Menthens und Menthenons. (Göttingen). Hildesheim, 1899.

SCHULER, W. Versuche über die Empfindlichkeit der spectralanalytischen Reactionen. Bonn, 1901.

SCHULTEN, CARL. Beiträge zur Kenntnis fester Lösungen. Erlangen, 1896.

SCHULTZ, B. Ueber gebromte Toluyl- und Phtalsäuren. Rostock, 1886.

SCHULTZ, ERWIN. Beiträge zu [illegible] nis der Stickstoffalkylaldoxime und ihrer Umlagerung. L [illegible] , 1900.

SCHULTZE, ALBERT. Die Benz [illegible] ndungen der bei der Spaltung der Eiweisskörper e [illegible] nidosäuren. Berlin, 1900.

SCHULTZE, H. Die innere Rei [illegible] n Argon und ihre Aenderung mit der Temperatur. Ha [illegible] 01.

SCHULTZE, OTTO W. Ueber [illegible] mere Diazocyanide und über Derivate von Diazokarbonsäuren. Würzburg, 1896.

SCHULZ, F. N. Die Krystallisation von Eiweisstoffen und ihre Bedeutung für die Eiweisschemie. Jena, 1901.

SCHULZ, PAUL. Verhalten von Salzen in Aceton. Giessen, 1901.

SCHULZE, WILHELM. Beiträge zur Elektrochemie des Arsens. Berlin, 1900.

SCHUMACHER, GUSTAV. Über die elektrochemische Reduktion der Nitroanissäure. Giessen, 1902.

SCHUMANN, CURT. Untersuchungen über Phenole und Pseudophenole. Heidelberg, 1900.

SCHUMANN, HANS. Über die Einwirkungsprodukte von Schwefeldioxyd auf Ammoniak. Würzburg, 1899.

SCHWAB, OTTO. Über Kondensationsprodukte aus Aldehyden und Aminen und ihre Jodalkylate. Würzburg, 1900.

SCHWABACHER, FRITZ. Einwirkung von Monochloressigsäure auf Oxyazoverbindungen. Heidelberg, 1899.

SCHWABACHER, H. Ueber Phenanthrolchinone. Zürich, 1901.

SCHWABBAUER, GEORG. Einwirkung von Methyl- und Aethyl-Amin auf Furfurol und Cuminol. Breslau, 1902.

SCHWABE, RUDOLF. Ueber das 1-Parabromphenyl-3-methyl-5-chlorpyrazol und dessen Derivate. Rostock, 1900.

SCHWÄRZLE, FRANZ. Ueber die Einwirkung von Orthoameisenäther auf aromatische Amine. Rostock, 1897.

SCHWARZ, OTTO. Ueber die Condensationsprodukte von Metaamidophenol und Acetessigäther. (Tübingen). Strassburg, 1899.

SCHWARZ, RUDOLF. Ueber die Synthese einiger Pyrimidinderivate. Berlin, 1899.

SCHWEDE, RUDOLF. Über Halogenderivate von Imiden zweibasischer Säuren. (Basel). Dresden, 1901.

SCKERL, PAUL. Jodoso-, Jodo- und Jodiniumverbindungen vom p-Propyljodbenzol. Freiburg i. B., 1900.

SEBALDT, FRANZ. Über den Zustand wässeriger Ammoniak- und Aminlösungen. (Würzburg). Leipzig, 1899.

SECURIUS, RUDOLF. Ueber Oxyphosphazo-Verbindungen höherer Homologen der aromatischen Reihe und einige Derivate derselben. Rostock, 1898.

SEEHAGEN, OTTO. Beiträge zur Kenntnis der β-Naphtochinolin-6-Sulfonsäure und des 6-Oxy-β-Naphtochinolins. Freiburg i. B., 1899.

SEEL, EUGEN. Beiträge zur Kenntnis des Diazomethans. (Tübingen), Strassburg, 1899.

SEELIGER, ALBERT. Ueber die Einwirkung des Oxalsäureaethylaethers auf aromatische Amidoverbindungen. (Rostock). Wolfenbüttel, 1897.

SEELOS, HEINRICH. Ueber die Reinigung der Stärkefabrikabwässer. Basel, 1898.

SEEMEN, WALTER VON. Beiträge zur Kenntnis des p-Methyl-ana-Oxychinolins und der p-Methyl-ana-Oxychinolin-o-Sulfonsäure. Freiburg i. B., 1900.

Seesemann, Max. Ueber einige Sulfantimoniate. (Rostock). Berlin, 1897.

Seidel, Johannes. Jodsubstitutionsprodukte einiger aromatischer Alkohole, Aldehyde und Säuren. (Rostock). Leipzig, 1899.

Seidel, Otto. Ueber die Benzoylderivate des Acetonitril und das p-Toluylacetonitril. (Rostock). Leipzig, 1898.

Seifart, Alfred. Synthese des 2-2'-Dioxyflavon. Bern, 1901.

Seiffert, Otto. Beiträge zur Kenntnis der Ozokerit führenden miozänen Ablagerungen yslaw am Nordrande der Karpathen. Halle a. S., 190

Seitter, Eduard. Ueber den elstickstoff und seine Derivate. München, 1897.

Seldis, Rudolph. Beiträge enntnis der Undecylensäure. Heidelberg, 1900.

Sertz, Hans. Verhalten von Formalin gegen Eiweisskörper, Gelatine und Peptone, sowie Verwendung desselben bei der Untersuchung von Nahrungs- und Genussmitteln. (Erlangen). Ansbach, [1896].

Seuffert, Otto. Ueber das ε-Lacton der 2,6-Dimethyloctan-3-ölsäure. Ueber Bromierungsprodukte des Menthons. München, 1900.

Séverin, Emile G. Produits de condensation de l'cide dichlorophtalique. Paris, 1900.

Seydel, Curt. Synthesen des 3-, 5-, 6-Tri-Methoxy-Phenanthrens (Methyl-Thebaols) und des 2-Methoxy-Phenanthrens. Berlin, (1902).

Seyewetz, Alphonse. Sur les combinaisons des matières colorantes acides avec les matières colorantes basiques. Lyon, 1900.

Seyler, Heinrich. Ueber die Dimethylanilinphtaloylsäure. Greifswald, 1898.

Sheldon, Norman Lindsay. Ueber neue Umwandlungsprodukte des Dibromanhydro-p-oxy-pseudocumylalkohols. Heidelberg, 1900.

SHUTTLEWORTH, ARTHUR E. Eine neue Methode der Aschenbestimmung. Göttingen, 1899.

SICHERER, WALTHER VON. Über Abkömmlinge des 1.4-Benzopyranols. (Tübingen). München, 1901.

SIDGWICK, NEVIL VINCENT. Ueber Acetondipropionsäure und ihre Derivate. Tübingen, 1901.

SIEBEN, JULIUS. Ueber Dinitrosalicylsäure und über Abkömmlinge der p-Kresotinsäure. Königsberg, 1900.

SIEDLER, PHILIPP. Über die Einwirkung von Brom auf p-Dioxyditolylmethan. Marburg, 1900.

SIEGFRIED, KURT. T. 1. Beiträge zur Kenntnis des Benzoylacetons. T. 2. Eine neue Synthese des $\alpha\alpha'$-Diphenylpyrons. Leipzig, 1901.

SIEGRIST, JOS. Über die Geschwindigkeit der elektrolytischen Abscheidung von Kupfer bei Gegenwart von Schwefelsäure. Ein Beitrag zum Studium der elektrolytischen Reaktionsgeschwindigkeit. (Basel). Leipzig, 1901.

SIEMIATKOWSKI, FELIKS VON. Ueber die Condensationen von *m*-Nitrozimmtaldehyd mit Acetophenon, Aceton und den drei Nitroacetophenonen. (Freiburg, Schweiz). Posen, 1897.

SIENICKI, TADEUSZ. Kondensationen von Opian- und Bromopiansäure mit Cyanessigsäure und Derivaten der letzteren. Freiburg, (Schweiz), 1901.

SIEVERTS, ADOLF. Beiträge zur Kenntnis des Pinols. Göttingen, 1898.

SIGEL, ALBERT. Ueber die Konstitution oxydierter Pseudophenole und deren Umwandlungsprodukte. Heidelberg, 1900.

SIKORSKA, H. Étude pharmacodynamique des principales préparations de valériane. Genève, 1899.

SILBERMANN, FELIX. Über die elektrochemische Reduktion aromatischer Nitrokörper in saurer Lösung. Giessen, 1900.

SILBERRAD, OSWALD JOHN. Ueber die Polymerisationsprodukte aus Diazoessigaether. Würzburg, 1900.

SILBERSTEIN, MIECZYLAW. Über ein neues Isomeres des Rosindulins. Lausanne, 1901.

SILVA, GIUSEPPE. Recherches sur la stéréoisomérie des quinoneoximes. Lausanne, 1901.

SIMON, EDGAR. Zur Constitution des Paratoluchinophtalons. (Freiburg i. B.) Basel, 1901.

SIMON, G. Beitrag zur Kenntnis der Eiweisskörper der Kuhmilch. Halle, 1901.

SIMON, JOHANN. Ueber die Ox[illegible]n der Hexyl-Itaconsäure und -Aticonsäure mit Kaliumpermanganat. Strassburg, 1900.

SIMON, OSKAR. Über Cetrarsäure. Leipzig, 1902.

SIMONIS, HUGO. Ueber einige Mono- und Dioxydialphylessigsäurelactone. Freiburg, (Schweiz), 1897.

SKIBA, WACLAW. Ueber Umlagerungen in der Dibenzhydroximsäurereihe. Zürich, 1898.

SKIRROW, FREDERICK WILLIAM. Über die Löslichkeit von Kohlenoxyd in binären organischen Gemischen. Leipzig, 1902.

SKITA, ALADAR. Beiträge zur synthetischen Verwendung des Cyanwasserstoffsesquichlorhydrates. Heidelberg, 1900.

SLABOSZEWICZ, JOSEF. Über eine neue Synthese der Fluorindine. Basel, 1901.

SLAMA, FRANZ. I. Über Halogenderivate des Anthragallols. II. Darstellung eines Oxystyrogallols. (Giessen). Wien, 1899.

SMIRNOFF, WASSILY. Beiträge zur Kenntnis der Friedel-Crafts'schen Reaktion. Freiburg i. B., 1900.

SMITH, HARRY MONMOUTH. Kryoskopische Untersuchungen. Heidelberg, 1898.

SMITH, LONGFIELD. Über einige Derivate des α-Methyl-β-Ketopentamethenylens (Looft's Keton). Leipzig, 1898.

SMYTH, MORLAND. Beiträge zur Kenntniss der isomeren Diacetbernsteinsäureester. Jena, 1901.

SMYTHE, JOHN ARMSTRONG. Ueber das Nitrosopinen. Göttingen, 1898.

SMYTHE, JOHN SEABURY. I. Zur Umlagerung von Bromdiazoniumchloriden in Chlordiazoniumbromide. II. Ueber sogen. Diazoguanidin. Würzburg, 1899.

SOBIECH, JOSEF. Untersuchungen über Milch- und Wassermargarine. Leipzig, 1896.

SOENDEROP, FRITZ. Ueber die Einwirkung von Queksilbersalzen auf Kobalticyanalkalien. Berlin, 1899.

SOHN, KARL BERNHARD. Untersuchungen über einige beiderseitig orthoständig substituirte Benzolderivate. (Heidelberg). Bonn, 1898.

SOMMER, FRITZ. Ueber m-Xylylamin und m-Methylphenyläthylamin. Breslau, 1900.

SOMMER, RICHARD. [I.] Ueber Condensationen von p.-Amidophenolen mit Ketonen und [II.] über Abkömmlinge des Anhydroformaldehydanisidins. (Erlangen). München, 1900.

SOMMERFELDT, ERNST. Thermochemische und thermodynamische Methoden, angewandt auf den Vorgang der Bildung von Mischkrystallen. (Göttingen). Stuttgart, 1900.

SONDHEIMER, ALBERT. Ueber: I. Indazole und Isindazole. II. Die Bildung eines achtgliedrigen Ringes. Heidelberg, 1899.

SONNEBORN, F. Zur Kenntniss der Vinylessigsäure. Basel, 1902.

SONNEBORN, HERMANN. Ueber einige Oxydationsproducte der Pulegensäure. (Rostock). Göttingen, 1899.

SORGE, REINHARD. Ueber die Condensation aromatischer Ketone. (Breslau). Jena, 1902.

SPECKETER, HEINRICH. Ueber eine quantitative elektrolytische Trennungsmethode der Halogene. Chlor, Brom, Jod. Göttingen, 1898.

SPENCER, PERCY. Ueber O. Acylderivate des Acetessigesters und einiger verwandter Verbindungen. Kiel, 1900.

Speyer, Edmund. Zur Kenntnis der Additionsfähigkeit ungesättigter Verbindungen. Heidelberg, 1901.

Spiess, H. Ueber die Jodometrie von Gold und Platin. Freiburg, 1902.

Spiess, Paul. Ein Beitrag zur Bildung pentacarbocyclischer Verbindungen. Göttingen, 1902.

Spiess, Paul. Ueber Säureanhydride, Säureamide und ihre Derivate. Freiburg i. B., 1900.

Spitta, Albert. Zur Kennt[illegible] Diphenylisodithiobiazolon. Erlangen, 1902.

Spitzer, F. Ueber einige Derivate der β-Naphtoxyessigsäure. Berlin, 1900.

Sprenger, Gustav. Ueber 4-Methylbenzylhydrazin. (Heidelberg). Mainz, 1901.

Springer, Edmund. Beiträge zur analytischen und toxikologischen Chemie der Alkaloide. (Strassburg). Breslau, 1901.

Springmann, Adolf. Ueber Umwandlungsprodukte der Meta- und Para-Nitrobenzhydroximsäurechloride. (Zürich). München, 1897.

Sprinkmeyer, Heinrich. Das o-Isopropyltoluol. Münster, 1901.

Sprinz, Julius. Isoalantolacton. Ein bei der Darstellung des Alantolactons erhaltenes Nebenprodukt. (Basel). Breslau, 1901.

Spruck, Wilhelm. Über Additionsprodukte von Aethylendiamin an Salze zweiwertiger Metalle. (Zürich). Giessen, [1898].

Stadlmayr, Franz. Ueber die Einwirkung von Natronlauge auf β-Bromphenylbutyrolacton. Strassburg i. E., 1902.

Stähler, Arthur. (1.) Zur Kenntnis des Carvons, Encarvons und ihrer Autoxydationsprodukte. (2.) Beiträge zur Konstitutionsbestimmung der Santonsäure bezw. des Santonins. Berlin, 1902.

Stahl, Wilhelm. Ueber Raffination, Analyse und Eigenschaften des Kupfers. Tübingen, 1886.

STANG, ADOLF. I. Ueber Citrylidenbisacetessigester. II. Beiträge zur kondensierenden Wirkung des Ammoniaks und der Amine. Heidelberg, 1898.

STARCK, WILHELM. Neue Beiträge zur Kenntnis der Jonen verdünnter Schwefelsäure. (Greifswald). Stralsund, 1899.

STARK, OTTO. Ueber eine Diketonsäure und ein Ketolacton aus dem Acetylaceton. Strassburg i. E., 1902.

STARKE, PAUL. Ueber Orthoazoxy-, azo- und hydrazoanisol, die Ueberführung des letzteren in Dianisidin und einige Präparate des letzteren. Halle a. S., 1898.

STATINS, FRANZ. Beiträge zur Kenntnis der Benzenyltetrazotsäure. Königsberg in Pr., 1896.

STAUDENMEIER, LUDWIG. Untersuchungen über das Tellur. (München). Hamburg u. Leipzig, 1895.

STECHELE, FRITZ. Zur Kenntnis des Allylacetons. (Göttingen). Hildesheim, 1901.

STECKHAN, ERNST. Zur Kenntnis der Gattermann'schen Aldehydsynthesen. (Heidelberg). Wiesbaden, 1900.

STEIN, MAX. Über das Selenopyrin und seine Derivate. Rostock, 1902.

STEIN, VICTOR. Zur Kenntniss einiger Carbazolderivate. Ueber die Lichtempfindlichkeit von Diazoverbindungen. Berlin, 1901.

STEINBOCK, H. Ueber eine neue Bildungsweise von Nitrosoverbindungen. Berlin, 1899.

STEINBUCH, EWALD. Über einige neue Condensationsprodukte zweiwertiger Phenole mit Aceton und Mesityloxyd sowie über die Einwirkung von Chlorpikrin, Acetonchloroform und Acetonchloral auf Phenylhydrazin. (Lausanne). Zürich, 1899.

STEINEGGER, RUDOLF. Die Salzsteine, ihre chemische Zusammensetzung, Bildung, und Verhütung. Ein Beitrag zur Verbesserung der Technik der Emmenthaler Käsefabrikation. Bern, 1901.

STEINER, GIANNINO. Recherches sur des isomères de la rosinduline et leurs relations avec les acides naphtopicriques. Genève, 1900.

Steiner, Otto. Beiträge zur Kenntnis der Schwefel-Selen-Tellur-Gruppe. Heidelberg, 1900.

Steiner, R. Beiträge zur Kenntniss des Einflusses der Pasteurisirung auf die Beschaffenheit der Milch und auf den Butterungsvorgang. Leipzig, 1901.

Steinfels, W. Contribution à l'étude de quelques polyborates. Genève, 1898.

Steinhäuser, Simon. Ueber unterschwefligsaure und schwefligsaure Doppelsalze des Silbers, Kupfers und Quecksilbers. Berlin, 1899.

Steinkopf, Otto. Ueber die [illegible]hochlorphosphine des Piperidins und einige Derivate derselben. Rostock, 1897.

Steinmann, Albert. Sur quelques dérivés du pyrrol. Genève, 1901.

Steinorth, Carl. Über einige Derivate des Iso- und Diisoamylbenzols. (Rostock). *n. p.*, [1898].

Steinwehr, Hellmuth von. Studien über die Thermochemie sehr verdünnter Lösungen. (Göttingen). Hildesheim, 1900.

Stelling, Erwin. Über die Kondensation von Benzylcyanid mit Opiansäure sowie mit einigen Aldehyden. Freiburg (Schweiz), 1898.

Stellmann, Wilhelm. Über Halogenverbindungen des fünfwertigen Antimons und einige ihrer Doppelverbindungen. (Berlin). Celle, 1901.

Stenz, Albert. Zur Kenntnis des Sulfocarbanilids und dessen Derivate. (Rostock). Dresden, 1899.

Stephani, Otto. Untersuchungen über Pseudophenole. Heidelberg, 1901.

Steppes, Friedrich. Über p- und o-Toluidoessigsäure und α-p- und α-o-Toluidopropionsäure. (Erlangen). Hannover, 1899.

Stern, Hermann. Ueber Isomerie in der γ-Diketonreihe. (Erlangen). Berlin, 1899.

Stern, Joachim. Beiträge zur Kenntnis einiger Diketone. Heidelberg, 1902.

Stern, Max. Über elektrolytische Reduktion von Succinimiden. Würzburg, 1900.

Sternberg, Wilhelm. Ueber die Einwirkung von Benzaldehyd auf tricarballylsaures Natrium bei Gegenwart von Essigsäureanhydrid. Strassburg, 1899.

Steudel, Ueber Argon und Helium. Reutlingen, 1900.

Stevens, Henry Potter. Ueber Tolyl- und Benzyl-Derivate des Furodiazols und Thiodiazols. Heidelberg, 1899.

Stiasny, Edmund. Untersuchungen über Nitroderivate des Hydrazo-, Azo- und Azoxybenzols. Zürich, 1898.

Stiegel, Reinhold. Ein Beitrag zur Kenntnis der tautomeren Formen des Methenbisacetylacetons. Leipzig, 1901.

Stierlin, Carl. Beiträge zur Kenntnis des 2. 6-Dichlorparaphenylendiamin's und des meta-ana-Dichlorparaamidochinolin's. Freiburg i. B., 1900.

Stirm, Karl. Ueber das Δ 6. Menthen 2 on. Berlin, 1901.

Stock, Alfred. Ueber eine quantitative Trennung des Arsens vom Antimon. Monobromakrolein und Tribrompropionaldehyd. Ueber einige Bromnitrosokohlenwasserstoffe und ihre Umwandlung in Pseudonitrole. Berlin, 1899.

Stoeber, Gustav Karl Willi. Über basische Metallverbindungen der β-Ketonsäureester. Würzburg, 1900.

Stoecker, Max. Untersuchungen über Phenylseleninsäure $C_6\,H_5$. Se O_2 H und Phenylselenosäure $C_6\,H_5$. Se O_3 H. Heidelberg, 1901.

Stoermer, M. Untersuchungsmethoden der in der Thonindustrie gebrauchten Materialien, mit besonderer Berücksichtigung der häufig auftretenden Fabrikationsfehler, deren Ursachen und Verhütung. 2., verbesserte Auflage von "Die Fehler bei der Thonwaarenfabrikation." Freiberg, 1902.

Stoffel, Maurice. Recherches sur quelques dérivés de la flavinduline. (Genève). Frauenfeld, 1899.

Stolle, R. Studien mit Hydrazin. Heidelberg, 1899.

Stolte, Heinrich. Ueber organische Selenverbindungen. Berlin, 1887.

Storp, Wilhelm. Ueber den Einfluss von Alkylgruppen auf die Abspaltung der Halogene aus dem Benzolkern. (Heidelberg), 1901.

Straub, Adolf. Beiträge zur Kenntnis der Producte der alkoholischen Gärung der Bierwürze mit besonderer Berücksichtigung der Bildung von Bernsteinsäure. (Erlangen). München, 1895.

Straus, Fritz. Die unges[illegible] [illegible]tone der Hydrocornicularsäure und Desylessigsäure. M[illegible], 1901.

Strauss, Carl. Untersuchungen über Diazoimide und Diazoperbromide. Marburg, 1899.

Strauss, Eduard. Ueber Aminoalkohole und einige Derivate. Berlin, 1899.

Strauss, Emanuel. Beitrag zur Kenntnis des β-Amidocrotonesters und der Nitrosamine. Heidelberg, 1900.

Strauss, Heinrich. Beiträge zur Kenntnis einiger Derivate des p-Oxychinolins. Freiburg i. B., 1898.

Strauss, Otto. Hydrirte Derivate des Diphenyl- und Triphenylmethans. Halle a. S., 1899.

Strebel, Otto. Über die Einwirkung des Phosphoroxychlorids auf die Nitraniline. Rostock, 1898.

Strecker, Wilhelm. Versuche über die Einwirkung von Aethylnitrit auf β-Aminokrotonester. Heidelberg, 1900.

Strigel, Arthur. Über die Produkte der Kondensation des Methyl-Äthylketons mit Bernsteinsäurediäthylester unter dem Einfluss von Natriumäthylat. Leipzig, 1900.

Strube, Fritz. Über einige Derivate der Hydrochelidonsäure. Halle a. S., 1901.

Strunz, Franz. Beiträge zur Entstehungsgeschichte der stoechiometrischen Forschung. (Eine Kritik d. inductiven Naturwissenschaft.) Berlin, 1901.

Strzyzowski, Casimir. Physiologisch-toxikologische Studien. (Lausanne). Zürich, 1899.

Stüber, W. Ueber Produkte der alkalischen Hydrolyse des Eieralbumins. Erlangen, 1898.

Stünzi, Robert. Beitrag zur Kenntnis der Diacidotetramminkobaltiake. (Zürich). Basel, 1901.

Stüssi, Hans. Recherches sur le produit de condensation de l'aldéhyde formique et le β-naphtol. Genève, 1898.

Stützel, Ludwig. Zur Kenntnis der seltnen Erden des Cerits. München, 1899.

Suchy, R. Ueber pyrochemische Danielketten. (Zürich). Leipzig, 1901.

Sudendorf, Theodor. Ueber das 1-p-Tolyl-3-methyl-5-chlorpyrazol und die Antipyrin-Bzcarbonsäure. Rostock, 1901.

Suler, Ber. Beiträge zur elektrolytischen Reduction der Nitrite. Berlin, 1901.

Sullivan, E. C. Studien über einige Jodverbindungen. Leipzig, 1899.

Sulzberger, Nathan. Zur Kenntnis αβ-ungesättigter Lactone: Das αβ-ungesättigte Lacton der Benzoylpropionsäure. München, 1900.

Sumuleanu, Cornelius. [1.] Synthese des Isomethylmorphols. Ein Beitrag zur Constitutionsfrage d. Morphins u. Codeïns. [2.] Ueber die ortho-Nitroderivate des Vanillins. Berlin, 1901.

Sundheimer, Heinrich. Ueber Polyphenylensulfid $(C_6H_4.S.C_6H_4.S)_4$. Heidelberg, 1899.

Sundmacher, Wilhelm. Zur Kenntniss des m-Amidophenols. (Rostock). Hildesheim, 1899.

Sundvik, Ernst Edv. Om chitin. Helsingfors, 1882.

Sussdorff, G. Contribution à l'étude de l'acide nicotinique et de quelques-uns de ses dérivés. Genève, 1897.

SUTHERST, WALTER-FREDERICK. Recherches sur les dérivés de naphtazonium. Genève, 1900.

SVENSSON, NILS WILLDENOW. Om några vermländska mineralier. Lund, 1866.

SZOLAYSKI, BOGDAN. Zur Kenntnis des p-Nitrosotoluols und Nitrosobenzols. Zürich, 1899.

TALBOTT, BENJAMIN ERLIE. Ueber 5-Nitro-4-Jodoso-, Jodo- und Jodiniumverbindungen aus 1,3-Xylol. Freiburg i. B., 1900.

TAMS, HANS. Zur Kenntni[illegible]ethylcyclohexylamins und des Methylhexanons. (G[illegible] Hildesheim, 1899.

TARIBLE, JOSEPH. Sur les combinaisons du bromure de bore avec les composés halogénés du phosphore, de l'arsenic et de l'antimoine. Paris, 1899.

TASSILLY, EUGÈNE. L'atmosphère terrestre. Paris, 1899.

TEDESKO, VICTOR. Beiträge zur Kenntnis indoxylartiger Verbindungen. (Zürich). Wien, 1900.

TERHEGGEN, ALOYS. Ueber einige Derivate des para- und meta-Amidochinolins. Rostock, 1901.

TER-SARKISSJAN, LEON. Zur Kenntnis des m-Tolylhydroxylamins und β-Phenylhydroxylamins. (Basel). Zürich, 1899.

TESSE, THEODORE S. Dampfspannkraftsmessungen an Abkömmlingen des Benzols und über die Bedeutung solcher Messungen für die Lehre von den Siedepunktsregelmässigkeiten. Basel, 1896.

TETZNER, FRIEDRICH. Ueber die Salzsäure-Additionsprodukte der Alkyliden-Desoxybenzoine. Heidelberg, 1902.

TEUDELOFF, ALFRED. Über die Einwirkung von Monochloracetal auf die Monoalkyläther der zweiwertigen Phenole. Rostock, 1900.

TEUDT, HEINRICH. Über die Änderung der spezifischen Wärmen wässeriger Salzlösungen mit der Temperatur. Erlangen, 1900.

TEWES, ARNOLD. Ueber das Verhalten einiger Diazoamidoverbindungen. Göttingen, 1899.

THAETER, KARL. Beiträge zur forensischen Chemie und Wertbestimmung scharfwirkender Drogen. I. Quantitativer und qualitativer Nachweis des Santonins in den Blütenköpfchen von Artemisia maritima. II. Ueber die Glukoside der Wurzel von Helleborus niger: Helleborein und Helleborin. (München). Berlin, 1897.

THEILE, REINHOLD. Über Abkömmlinge des p-Dibromjodbenzols mit mehrwertigem Jod. Freiburg i. B., 1901.

THEILER, C. Ueber die Oxydation aromatischer Alkyloxyaldehyde und Alkyloxyketone zu den entsprechenden Säuren. (Bern). Zürich, 1901.

THEIS, F. C. Die Breitbleiche baumwollener Gewebe. Berlin, 1902.

THEIS, FRIEDRICH CARL. Zur Kenntniss der Dioxyamido-anthrachinonmonosulfonsäure. Freiburg i. B., 1886.

THELEN, MATTHIAS. Ueber einige Chlorphosphine tertiärer aromatischer Amine. Rostock, 1897.

THESMAR, G. Contribution à la connaissance des xylènes. Bâle, 1902.

THIELE, EDUARD. Über Kondensationsprodukte von aromatischen Diaminen mit Mandelsäurenitril und Milchsäurenitril. Basel, 1900.

THÖLKE, FRITZ. Über homologe Terpenkohlenwasserstoffe. (Göttingen). Hildesheim, 1902.

THOMA, FRITZ. Über einige Chalkonderivate. Berlin, 1900.

THOMASCHEWSKI, PAUL. Beiträge zur Kenntnis der Isoxazole. Kiel, 1900.

THOMMESEN, THOR. Ueber die Condensation von p-Isopropylmandelsäure mit Phenolen. Freiburg, (Schweiz), 1898.

THON, EDUARD. Untersuchungen über den Monoaethylaether des 2. 7-Dioxynaphtalins. Marburg, 1899.

THRON, HEINRICH. Beiträge zur Kenntnis der Isopropylisoparaconsäure. Strassburg, 1898.

THYSSEN, HEINRICH. Ueber das Hydrazid der α-Thiophencarbonsäure. Heidelberg, 1899.

TIEMANN, HUGO. Untersuchungen über die Zusammensetzung des Kolostrums mit besonderer Berücksichtigung der Eiweisstoffe desselben. (Rostock). Strassburg, 1898.

TIMMERMANN, HAROLD. Untersuchungen über Verbindungen der Limonen und Carvongruppe. Göttingen, 1895.

TISCHBEIN, ROBERT. Ueber Phtalylphenylisocrotonsäure. München, 1899.

TOBIÆSON, AND. GUST. Om vissa svafvelföreningar med serskildt afseende på de uppgifna högsta och lägsta svafvelbildningsgraderna af arsenik. Upsala, 1857.

TOENNIES, EMIL. Studien über Dampfspannkraftsmessungen am Toluol und an Derivaten des Toluols mit besonderer Berücksichtigung stellungsisomerer Verbindungen. (Basel). Düsseldorf, 1896.

TOEPFFER, HELLMUT W. Ueber die galvanische Ausfällung von Legierungen des Eisens und verwandter Metalle und über das elektrochemische Verhalten dieser Metalle. Breslau, 1899.

TOMARTSCHENKO, PAUL. Zur Kenntnis der Einwirkung von Salzzusätzen auf das Drehungsvermögen von Zuckerlösungen. Freiburg, (Schweiz), 1901.

TOMBECK, DANIEL. Recherches sur les combinaisons des sels métalliques avec les amines aromatiques. Paris, 1900.

TOUSSAINT, HUGO. Beitrag zur Kenntniss der Nickelarsenate. Berlin, 1900.

TRABERT, H. Ueber das Lutidylmercaptan und seine Derivate. Berlin, 1900.

TRAMPEDACH, EDGAR. Aromatische Diazoniumsalze und ammoniakalische Kupferoxydullösung. Halle a. S., 1901.

TRAPP, MAX. Beiträge zur Kenntnis des Chinoisochinolins (Isophenantrolins). Freiburg i. B., 1899.

Traub, August. Ueber α-Phenyl- und α-Methyl-α-naphtocinchoninsäure und die entsprechenden α-Alkyl-α-Naphtochinoline. (Freiburg i. B.). Stuttgart, 1900.

Traun, Friedrich Adolph. Zur Kenntnis des Dibrommesitolbromids und seiner Umwandlungsprodukte. Heidelberg, 1899.

Trautwein, Hermann. Untersuchungen über die Explosionsgrenzen brennbarer Gase und Dämpfe. (Basel). München, 1900.

Treibich, Adolf. Ueber Einwirkung von Brom auf Acetylendicarbonsäure. Königsberg, 1901.

Treff, Walther. Ueber Pyrrolverbindungen der Camphergruppe. (Jena). Leipzig, 1900.

Treutler, Georg. Über einige aromatische Amido-Chlorketone und den p-Dimethylindigo. Rostock, 1900.

Trillat, Jean-Auguste. Oxydation des alcools par l'action du contact. Paris, 1901.

Tritschler, Fritz. Ueber Derivate höherer ungesättigter Carbonsäuren. Heidelberg, 1900.

Tschirner, Frederick. (i.) Ueber die Oxydation aromatischer Basen, insbesondere über die Oxydation von Anilin. (ii.) Ueber β-Phenylhydroxylamin. (München). Zürich, 1900.

Tunks, F. Russell. Ueber Chinolin-β-carbonsäure und β-Amidochinolin. Freiburg, i. B., 1899.

Tymieniecki, Konstantyn von. Ueber p- und o-Oxydiphenylessigsäuren. Freiburg, (Schweiz), 1898.

Uedinck, August. Ueber einige Derivate des β-Brompropylamins. (Rostock). Berlin, 1899.

Uellenberg, Emil. i. Beitrag zur Chemie des Kobalts und Nickels. ii. Über 1-Phenyl-4-Methyl-5-Pyrazolon. (Basel). Elberfeld, 1900.

Uhde, Robert. Beiträge zur Kenntnis sulfonierter Buttersäuren. Rostock, 1898.

Uhl, Otto. Ueber die Electrolyse von Ketonsäuren. Erlangen, 1900.

Uhlfelder, Emil. Ueber einige Derivate des Nitrobiurets und des Nitrodicyandiamidins. München, 1896.

Ulbricht, Julius. Beiträge zur Kenntnis halogensubstituierter n-Methyl-α-Chinolone. Erlangen, 1901.

Ullmann, Gustav. Ueber Flavonderivate der Naphthalinreihe. (Basel). Znaim, 1897.

Ulmer, Theodor. Ueber die Produkte der Einwirkung von Hydrazinhydrat auf Thioharnstoffe. Erlangen, 1901.

Ulrich, Harry. Ueber molekulare Umlagerungen acetylierter Phenole. Berlin, 1902.

Ulrich, Karl. Zur Kenntnis der aromatischen Arsoniumverbindungen und aromatischen Arsenbetaine. Rostock, 1900.

Umbach, Theodor. Zur Kenntnis der Derivate des m-Jodtoluols mit mehrwertigem Jod. Freiburg i. B., 1901.

Unger, Karl. Ueber einige substituerte Amide der Oxalsäure. Göttingen, 1896.

Unruh, Max von. Über gelbes Arsen und über Molekulargewichts-Bestimmung durch Siedepunkts-Erhöhung im calibrirten Weinholdschen Vacuumgefäss. Halle a. S., 1901.

Urbasch, Ottokar. Beeinflussung der Jonen durch den Magnetismus. Giessen, 1900.

Vagt, August. 1: Über das sogenannte Diazoguanidin. 2. Über den Zustand gelöster Stoffe auf Grund von Verteilungsversuchen. Leipzig, 1901.

Vahlen, Ernst. Ueber Desoxycholsäure. (Halle a. S.) Strassburg, 1897.

Valencien, Charles. Contribution à l'étude de la migration des doubles liaisons quinoniques dans les composés de l'azonium. Genève, 1901.

VALLÉE, CYRILLE. De l'action de l'isocyanate de phényle sur quelques acides sulfoniques gras et aromatiques. Lille, 1900.

VALLIN, KARL. Bidrag till kännedomen om isonura toluolmonosulfonsyror. Lund, 1884.

VAN DER MEULEN, P. H. Zur Kenntniss einiger Derivate der Camphersäure und Hemipinsäure. (Basel). Haag, 1896.

VAUDIN, L. Sur un rôle particulier des hydrates de carbone dans l'utilisation des sels insolubles par l'organisme. (Paris). Sceaux, 1901.

VEILLON, L. Zur Kenntniss der m-Oxyphenyl-p-tolylamin. Zürich, 1901.

VEIT, ALBERT. Zur Kenntniss der Isonitrokörper. Würzburg, 1899.

VELSEN, JOHANNES VON. Die Triglyceride und die Grundlagen der refractometrischen Butteruntersuchung. Bonn, 1901.

VERSCHAFFELT, J. A. Metingen omtrent het verloop der isothermen bij mengsels van koolzuur en waterstof. Leiden, 1899.

VESELÝ, VICTOR. Contributions à l'étude des matières colorantes thiaziniques. Genève, 1901.

VIERSEN, W. M. Bijdrage tot de bepaling van alcohol in maaginhoud. Utrecht, 1902.

VIEWEG, WALTHER. Die γ-Phenyl-α-indonessigsäure und Dipiperonyliden-bernsteinsäure. Leipzig, 1902.

VINCENT, E. Sur quelques dérivés azotés du bromal. Lyon, 1902.

VISSER, H. L. Beiträge zur Kenntnis des Salicins und seiner Derivate. Marburg, 1896.

VITTENET, HENRI. Contribution à l'étude des barbimides et des carbamides aromatiques simples et substituées et de quelques-uns de leurs dérivés. (Paris). Lyon, 1900.

VÖLLMER, B. Das elektrolytische Verhalten einiger Lösungen von essigsauren Kali in Essigsäure. Halle, 1898.

Völtz, Wilhelm. Zur Kenntnis des Futterwertes der Abdeckereiprodukte (Kadavermehle). (Heidelberg). Berlin, 1899.

Vogel, Curt von. Ueber Einwirkung von Isodialursäure auf Sulfoharnstoff (Rostock). Hannover, 1900.

Vogel, Julius. Ueber die Einwirkung von Stickoxyd auf Allylacetessigester und Isoamylacetessigester. Berlin, 1898.

Vogel, Karl. Ueber Jodoso-, Jodo- und Jodiniumverbindungen, die sich von 2-Jod-5-nitrotoluol ableiten. Freiburg i. B., 1900.

Vogel von Falckenstein, Kurt. Einwirkung von Aldehyden auf Acetonoxalester. Kiel, 1901.

Vogelensang, A. Watergas en zijne toepassingen. Utrecht, 1900.

Voigt, Carl. Cotarnin und Hydrastinin. Leipzig, 1896.

Voigt, Julius. Ueber einige Versuche zur Darstellung von α-Phenyladipinsäure sowie eine Darstellungsweise von β-Phenyladipinsäure und die Destillation ihres Calciumsalzes. Leipzig, 1902.

Voigtländer-Tetzner, Walter. Beiträge zur Kenntnis der Orthotoluolsulfinsäure. Rostock, 1896.

Volansky, Nicon. Chlorhydrates-chloromercurates et chloromercurates de quelques sels organiques. (Bern). Genève, 1897.

Volger, Franz. Beiträge zur Kenntniss des Ortho-Methyl-Chinolins. (Freiburg i. B.). Breslau, 1896.

Volkholz, Hans. Bestimmung von Aldehyden mit Dimethylhydroresorcin. Halle a. S., 1902.

Volkmann, Paulus. Lectiones cursorias, quas . . . Carolus Kippenberger Phil. Dr. Prof. 'Aufgaben der Gegenwart einer wissenschaftlichen gerichtlichen Chemie' ad docendi facultatem rite impetrandam die xxix. Junii . . . habebit, indicit P. V. Regimonti Bor., 1900.

Vollenhoven, Hendrik van Beeck. Zur Kenntniss des Suberons. Göttingen, 1902.

Vortisch, R. Ueber die Einwirkung aromatischer Amine auf die drei isomeren Dibrombrenzweinsäuren. Basel, 1902.

VOSS, ULRICH. Ueber Phenyl-Methylhalogenpyrazole. Rostock, 1901.

VUK, MICHAEL. Oxydationen von sekundären aromatischen Basen. Zürich, 1900.

WACHS, CURT. Über Anilidbildung. (Heidelberg.) Leipzig, 1899.

WACK, ADOLPHE. Ueber Derivate des Phenanthrens. Zürich, 1900.

WAGNER, EDOARDO. Ueber Condensation von Dekamethylendiamin mit Aldehyden und Ketonen. Heidelberg, 1901.

WAGNER, FRANZ. Über die Einwirkung von Brom auf p-Kresol. Marburg, 1899.

WAGNER, H. Synthese von Derivaten des Benzo-4-Pyranols, einer neuen Farbstoffklasse und des Benzo-4-Pyrans. Tübingen, 1901.

WAGNER, HANS. Ein Beitrag zur Kenntnis der Corydalisalkaloïde. Marburg, 1901.

WAGNER, HORST. Ueberführung von Alkylaldoximen in Diphenylamine. Leipzig, 1901.

WAGNER, JOSEF. Ueber Abkömmlinge der m-Kresotinsäure. Rostock, 1901.

WAGNER, JULIUS. Massanalytische Studien. Leipzig, 1898.

WAGNER, KARL. Untersuchungen über Benzidin und p-Diphenol. Marburg, 1899.

WAHL, M. A. Nitration des éthers acryliques substitués. Nancy, 1901.

WAHLFORSS, HENR. ALFR. Om bromtoluolklorid. Helsingfors, 1870.

WAHLSTEDT, PER JOH. ALFR. Bidrag till kännedomen om undersvafvelsyrlighetens organiska derivater. Lund, 1880.

WALDECK, K. Gasanalytische Untersuchungen an Bleischachtöfen. Berlin, 1901.

WALDENBERGER, C. A. Ueber die Elektrolyse der Estersalze der Phenylbernsteinsäure mit fettsauren Salzen. Basel, 1901.

WALKER, ANDREW JAMIESON. Ueber Konstitution und kryoskopisches Verhalten von o-Cyanphenolen. Heidelberg, 1899.

WALLERSTEIN, S. Quantitative Bestimmung der Globuline im Blutserum und anderen thierischen Flüssigkeiten. Strassburg, 1902.

WALTER, AUGUST. Ringsynthetische Versuche in der Carbazid-Reihe. (Erlangen). Sulzbach, 1901.

WALTER, WILHELM. Über Bromderivate des p-Benzylphenols. Marburg, 1901.

WANGERIN, ALBERT. Über die Titration des Indigos mit Hydrosulfit und über die Bildung von Indigo aus Phenylglycin-o-carbonsäure. Halle a. S., 1902.

WANGNICK, HANS. Ueber die Einwirkung von rauchender Salpetersäure auf Benzolsulfonpiperidin. Königsberg, 1900.

WARTENBERG, HANS VON. Beitrag zur Kenntnis der Quecksilberoxyhalegonide. Berlin, (1902).

WASSERZUG, DETMAR. Zur Kenntnis der Acetophenonderivate. Über einige Condensationsprodukte und Farbstoffe des m-Nitroacetophenons. Basel, 1900.

WEBER, CORNELIUS. Beiträge zur chemischen Kenntnis des Ammoniakgummiharzes und des Umbelliferons. Rostock, 1896.

WEBER, FRANZ PAUL. Über eine Synthese des Triphenylcyclopentans. Leipzig, 1901.

WEBER, HERMANN ALBERT. [I.] Ueber die Aufschliessung der Silikate durch Borsäureanhydrid und [II.] Ueber eine neue Methode zur Bestimmung des Fluors im Kryolith. Heidelberg, 1900.

WEBER, KURT. Ueber die Einwirkung von Formaldehyd auf einige mehrwertige Alkohole und Säuren. Göttingen, 1897.

WEDEKIND, EDGAR. Zur Stereochemie des fünfwertigen Stickstoffes. Mit besond. Berücks. d. asymmetrischen Stickstoffes in d. aromat. Reihe. (Tübingen). Leipzig, 1899.

Wedel, Johann. I. Über die Kondensationen von o-Aldehydosäuren mit Cyanessigsäure und deren Ester sowie mit Malonitril. II. Über die Einwirkung von Hydrazinhydrat auf einige γ-Lactone. Freiburg, (Schweiz), 1900.

Wedelstädt, Ernst von. Beitrag zur Kenntnis des Phenylcyanamids. Berlin, 1901.

Wegeli, Ulrich. Ueber die Darstellung von Chlor nach dem Magnesiummanganit-Verfahren von De Wilde und Reychler und dem Magnesia-Verfahren von Mond. (Zürich). Diessenhofen, 1898.

Wegener, Wilhelm. Zur Kenntnis des Poly-Oeles. Göttingen, 1895.

Wehr, Otto. Ueber die Einwirkungsprodukte von Basen auf das Tribromid des Pseudocumenols. Heidelberg, 1899.

Wehrmann, Rudolf. Beiträge zur Kenntnis der aromatischen Aldehyde. Heidelberg, 1900.

Weigand, Friedrich. Beiträge zur Kenntnis des Phenylpropargylaldehyds und des Monobromzimmtaldehyds. Kiel, 1902.

Weigert, Fritz. Zur Kenntniss des aus γ-chlorbutyronitril entstehenden Körpers. $C_8 H_{10} S_3$. Berlin, 1899.

Weil, Albert Otto. Zur Kenntnis des Pinakolinnitrimins. (Basel). Strassburg, 1898.

Weil, Leopold. Untersuchungen über die Halogenalkylate der Nitro-und Amidochinaldine. Freiburg i. B., 1899.

Weil, Ludwig. Beiträge zur Kenntniss der Saponinsubstanzen und ihrer Verbreitung. Strassburg, 1901.

Weil, Stanislas. Etudes sur l'éther cétipique. Fribourg, 1900.

Weingarten, Paul. Ueber die chemische Zusammensetzung und Konstitution des Vesuvian. Heidelberg, 1901.

Weinland, Rudolf Friedrich. Über die Vertretbarkeit von Sauerstoff, bezw. Hydroxylgruppen durch Fluor in den Alkalisalzen einiger Metalloid- und Metallsäuren. München, 1899.

WEINSCHENK, ARTHUR. Ueber die electrolytische Reduction einiger Oxypurine und Oxypyrimidine. 1. Reduction von 3-Methylxanthin und Heteroxanthin. 2. Reduction von Methyluracil und Barbitursäure. (Würzburg). Mainz, 1901.

WEINTRAUB, EZECHIEL. Über das Verhalten der Untersalpetersäure zu Schwefelsäure und Salpetersäure. Beiträge zur Kenntnis der Nitrocellulose. (Zürich). Berlin, 1899.

WEINTRAUB, NAUM. Nouvelle synthèse dans la série de la phénylacridine. Genève, 1900.

WEISS, ARNO. Untersuchungen zur Kenntnis bimolekularer Dicarboxylglutaconsäureester (w_2 w_2'-Propentetracarbonsäureester). Leipzig, 1902.

WEISS, BRUNO. Ueber secundäre Dialpharylhydrazine. (Erlangen). Wien, 1900.

WEISS, EMIL. Zur Kenntnis der tertiären aromatischen Arsine. Rostock, 1899.

WEISS, KARL. Über die Eiweisstoffe der Leguminosensamen. München, 1899.

WEISS, MAURUS. Zur Kenntnis des Hydantoïns und seiner Derivate. Berlin, (1902).

WEISS, RICHARD. I. Zur Synthese hydroaromatischer Verbindungen. II. Beitrag zur Kenntnis des Benzamarons. Heidelberg, 1898.

WEISS, RUDOLF. Ueber Cinnamylessigester und die beiden (α- und β) Naphtoylessigester, nebst einigen Abkömmlingen derselben. Kiel, 1902.

WEISSBEIN, S. Farbenanalytische Untersuchungen über Nährpräparate. Berlin, 1899.

WEISSBRENNER, HEINRICH. Uber Phenylglycin-o-carbonsäure. Halle a. S. 1900.

WEISSENBORN, ADOLF. Über Homologe der Sorbinsäure. Halle a. S., 1901.

WEIZMANN, CHAIM. I. Elektrolytische Reduktion von *1*-Nitroanthrachinon. II. Über die Kondensation von Phenanthrenchinon und *1*-Nitroanthrachinon mit einigen Phenolen. (Freiburg). Bern, 1899.

Welde, Robert. Zur Kenntnis des Bromhydrats des Dibromanhydro-p-oxypseudocumylalkohols und seiner Umwandlungsprodukte. Heidelberg, 1899.

Weldert, Robert. Ueber Ketochloride und Chinone des Indazols. Marburg, 1901.

Wellenstein, Carl Adolf. Ueber die Veränderungen des Bienenwachses durch die chemische Bleiche. (Würzburg). Bonn-Poppelsdorf, 1901.

Welsch, Ignaz. Ueber die Einwirkung von wasserfreier Ameisensäure bezw. von Essigsäureanhydrid auf Amido-, Anilido- und Toluidosubstituiertes Phenylacetamid, und ueber Reduktion von Phenylanilidoacetonitril. (Basel). München, 1898.

Wendler, Oskar. Verhalten von substituierten aromatischen Aldehyden gegenüber N-Alkylhydroxylaminen. Leipzig, 1901.

Wenk, Ernst. Beiträge zur Kenntnis des β-Naphtochinolins. Freiburg, i. B., 1899.

Wennekes, Hermann. Ueber organische Phosphorstickstoffverbindungen. Rostock, 1900.

Wentzel, M. Ueber die chemischen Bestandtheile der Mandragorawurzel. Berlin, 1901.

Weppner, Richard. Ueber einige Tolacylamine und ein Isomeres des β-μ-Diphenylimidazols und seines Homologen. Rostock, 1899.

Werbeck, Hermann. Ueber stickstoffhaltige Derivate der aromatischen Oxychlorphosphine. Rostock, 1896.

Werdenberg, Heinrich. Über Sulfosäuren und einige andere Derivate des Diphenylamins. Zürich, 1899.

Werdermann, Arthur. Über die Tautomerieerscheinungen eines cyklischen β-Diketonesters der Pentamethylenreihe. Leipzig, 1902.

Werner, David T. Ueber isomere Menthylamine und Menthene. Göttingen, 1897.

WERNICK, WALTER. Ueber die Einwirkung von Wasserstoffsuperoxyd auf N-alkylirte Piperidinbasen. Rostock, 1899.

WESENBERG, JOHANNES WILHELM. Über einige aromatische Di- und Tetraketone und Abkömmlinge derselben. Leipzig, 1898.

WESTERBERG, KARL ALB. Kemiska studier öfver några hartser. I. Om de kristalliserande hartssyrorna i galipot. II. Om elemihartsets kristalliserande beståndsdelar. Upsala, 1890.

WESTHAUSSER, FELIX. Studien über Natriumamalgam. Leipzig, 1901.

WESTPHALEN, WILHELM V. Zur Kenntniss der Fenchocarbonsäure. Göttingen, 1899.

WETZLICH, ARTHUR. Über die Einwirkung von Aldehyden auf Phenylessigsäure und Benzylcyanid und einige Abkömmlinge derselben zur Erzeugung von Stilben und Stilbenderivaten. (Leipzig). Dresden, 1899.

WICKE, GUSTAV. Beitrag zur Kenntnis des Pulegons und Menthons. Erlangen, 1898.

WIDMAN, OSKAR. Om naftalins klorföreningar. Upsala, 1877.

WIDMER, BENNO. Eine neue Furansynthese. Anhang: Zur Aldehylkondensation substituierter Pyrrole. Zürich, 1901.

WIDTSOE, JOHN ANDREAS. Ueber das Traganth-Gummi und die Methylpentosane. Göttingen, 1899.

WIEDE, FRITZ. Ueber Eisennitrosoverbindungen. München, 1897.

WIEDERHOLD, KURT. Ueber Chlorierungs- und Diazotierungsprodukte aus a-Amido-p-oxychinolin. (B-4-3-Amido-oxychinolin.) Marburg, 1895.

WIEDERMANN, FRITZ. Ueber farbige Indonderivate aus Dichlorindon. Berlin, 1900.

WIEDMANN, FRIEDRICH. Ueber Bestandteile der Blüten von Papaver Rhoeas. Zur chemischen Charakteristik d. Familie d. Papaveraceen. München, 1901.

Wiegand, Carl. Ueber Halogenverbindungen des Thalliums. Berlin, 1899.

Wiegand, Otto. Ueber die Einwirkung von Phtalylchlorid auf Salicylsäureester. Greifswald, 1898.

Wieland, Heinrich. Versuche zur Darstellung phenylierter Allene. Neue Reaktionen von Ketonen der Diphenylpropanreihe und des Desoxybenzoins. München, 1901.

Wienands, Albert. Ueber Oxydation von Aldehydphenylhydrazone[!] zu Osazone[!]. Kiel, 1899.

Wiesler, Arthur. Beiträge zur Kenntnis der Metaphosphate. Berlin, (1901).

Wikander, E. Hjalmar. Beiträge zur Kenntnis der Jodoso-, Jodo- und Jodoniumverbindungen des m-Jodnitrobenzols und des m-Jodacetanilids. (Basel). Freiburg i. Br., 1899.

Wilberg, Erich. Zur Kenntniss des o-Amidoditolylamins. Berlin, 1901.

Wilcke, Friedrich. Über Derivate des γ-Pyrans. Halle, 1900.

Wild, Wildhelm. Ueber Oxime aus α-halogenisierten Aldehyden, Ketonen und Säuren und über Oximessigsäuren. Würzburg, 1895.

Wildi, Fritz. Zur Kenntnis der Benzolacetophenon. (Bern). Aarau, 1897.

Wildt, Heinrich. Zur Kenntnis der drei Chlorbenzaldehyde. Freiburg, (Schweiz), 1901.

Wilke, Wilhelm. Ueber Vakuumdestillation, insbesondere über völlige Reindarstellung der Benzolsulfosäure und einiger anderer Sulfosäuren. Heidelberg, 1900.

Willeke, H. Studien über die quantitative Bestimmung der Hexosen, speciell Dextrose, Lävulose und Invertzucker. München, 1900.

Wimmenauer, Karl. Zur quantitativen Bestimmung des Wismuts durch Elektrolyse. (Würzburg). Darmstadt, 1900.

Windaus, Adolf. Neue Beiträge zur Kenntnis der Digitalisstoffe. Freiburg i. B., 1899.

Winkelblech, Karl. Über amphotere Elektrolyte und innere Salze. Leipzig, 1901.

Winkler, Wladislaw. Über Oxyarylmekonine. Freiburg, (Schweiz), 1901.

Winter, Curt. Über einige Ester des Cholesterins und Phytosterins und ihre Verwendbarkeit zum Nachweise von pflanzlichen in tierischen Fetten, sowie über einige sonstige unverseifbare Stoffe aus Pflanzenfetten. (Münster). Würzburg, 1902.

Winter, Ernst. Über die Einwirkung von Essigsäureanhydrid und Schwefelsäure auf Chinone. Über die Oxydationen bei Gegenwart von Essigsäureanhydrid und Schwefelsäure. Darmstadt, 1900.

Winter, H. Beiträge zur Kenntniss der Amalgame der Alkalimetalle. Göttingen, 1899.

Wintgen, Max. Beiträge zur Kenntnis der Papaveraceenalkaloïde. Marburg, 1898.

Winzheimer, Erich. Ueber das B-2-1-3-4-Dichlortriketohydrochinolinhydrat und seine Umwandlungsprodukte. Marburg, 1895.

Wipplinger, Christian Hermann. Über die elektrochemische Reduktion einiger Chlornitrobenzole. Giessen, 1901.

Wirtz, Reiner. Beiträge zur Kenntnis hochmolekularer fett-aromatischer Ketone und Oxime, substituierter Laurophenone und Myristophenone und deren Oxime. Freiburg i. B., 1900.

Wiske, Georg. Zur Kenntnis des ana-Oxychinolins und der ana-Aethoxychinoline. Freiburg i. B., 1899.

Wiskott, Friedrich. Ueber substantive Azofarbstoffe. Berlin, 1898.

Witte, Richard. Über μ-α-Di-Phenyl-β-Methyl-Imidazole und Homologe. Rostock, 1901.

Wittenstein, Carl. Zur Kenntnis der Derivate des p-Oxydiphenyls. Freiburg i. B., 1902.

WÖHLER. Die pseudokatalytische Sauerstoffactivirung des Platins. Karlsruhe, 1901.

WÖLBLING, H. Zur Kenntniss der Phtalazone. Berlin, 1900.

WOHLBERG, MEIER. Ueber β-Amidopropionaldehyd und seine Derivate. Berlin, (1901).

WOHLFAHRT, THEODOR. Über einige Benzidine. Giessen, 1902.

WOHLWILL, HEINRICH. Ueber die Elektrolyse der Alkalichloride. (Göttingen). Halle a. S., 1898.

WOLF, HUGO. Studien über Phloroglucinaether und deren Condensationsprodukte. (Bern). B. Leipa, 1901.

WOLFES, OTTO. Synthese von (5) Methoxyphenanthren. Untersuchungen über o-Nitrozimmtsäurenitrile. Berlin, 1899,

WOLFF, AUGUST. Ueber Derivate der Sorbinsäure. Halle a. S., 1901.

WOLFF, FRITZ. Ueber Hexahydrocinchomeronsäure und Hexahydroapophylensäure. München, 1897.

WOLFF, HUGO. Sur deux isomères de la rosinduline. Genève, 1900.

WOLFF, KARL. Ueber cyclische Disulfide und Disulfone. Freiburg i. B., 1900.

WOLFF, WALTHER. Untersuchungen über Bromierungs- und Oxydationsprodukte des as. o-Xylenols. Heidelberg, 1899.

WOLFFRAM, HANS. Ueber aethylaminhaltige Platinbasen. Königsberg i. Pr., 1900.

WOLFS, HANS. Beiträge zur Kenntnis primärer Diazofarbstoffe. Tübingen, 1899.

WOLMAN, LUDWIG. Studien über Acetondicarbonsäure. (Synthese der Hydrochinontetracarbonsäure und der Orcintricarbonsäure.) (Tübingen). Strassburg, 1898.

WOLPERT, ERNST. Ueber die Einwirkung von Senföl auf Sulfo-Carbazinsäuren. Erlangen, 1899.

WOLTZE, KARL. Ueber äthyliertes m-Kresol. Heidelberg, 1902.

WROTNOWSKI, FRANZ. Über die Kondensation der Phtalaldehydsäure mit Benzylcyanid, dessen p-Nitroderivat und mit Phenylmethylpyrazolon. Freiburg (Schweiz), 1899.

WÜBBENA, ALFRED. I. Untersuchungen über die Änderung der Quell- u. Keimfähigkeit harter Rot- und Weisskleesamen. II. Berechnung von Qualitätskoeffizienten aus der mittleren chemischen Zusammensetzung und den mittleren Marktpreisen landwirtschaftlich wichtiger Futtermittel. Kiel, 1899.

WULFF, ERNST. Einige Derivate der Cinnamylidenmalonsäure. (Kiel). Hamburg, 1896.

WUYTS, H. L'action du sulfhydrate d'ammoniaque sur les cétones. Bruxelles, 1902.

WYNEN, THEODOR. Beiträge zur Kenntniss organischer Sulfamin- und Sulfosäuren. Erlangen, 1900.

YODER, P. A. Ueber Dehydroschleimsäure; eine neue Darstellungsmethode, sowie verschiedene Salze und Ester derselben. Göttingen, 1901.

ZAHN, CURT. Ueber einige Phosphor- und Schwefel-Derivate der Amine des Diphenyls. Rostock, 1898.

ZAHN, OSKAR. Beiträge zur Kenntnis der o-Amidosalicylsäure. Rostock, 1899.

ZECHLIN, PAUL. Ueber die elektrolytische Reduktion der salpetrigen Säure. (Giessen). Berlin, 1899.

ZEHRLAUT, HERIBERT. Die Maximalstromdichten bei der Reduction aromatischer Nitrokörper in alkalischer und in saurer Lösung. (Giessen). Mainz, 1901.

ZEISS, WALTHER. Ueber die Einwirkung von Halogenalkylen auf die Kaliumsalze der Amidobenzoësäuren. Erlangen, 1901.

ZEITLIN, MOSES. Beiträge zur Kenntnis ungesättigter Oxyketone. Bern, 1899.

Zembrzuski, Kasimir von. I. Über Derivate des Acetophenons. II. Über unsymmetrische disubstituierte Hydrazine. Basel, 1900.

Zeromski, Wojciech. Ueber Condensationen des m-Methoxybenzaldehyd mit Acetophenon, den drei Nitroacetophenonen und Aceton. (Freiburg, Schweiz). Karlsruhe, 1898.

Zetlitz, Alf. Über Abkömmlinge des Diphenyläthanamidins. Freiburg, (Schweiz), 1899.

Zielke, Albert. Über einige Derivate des Dioxynaphtalins 2 : 7. (Basel). Riga, 1900.

Zietkowski, T. Über den Einfluss der Temperatur und des Aggregatzustandes auf die Mosotti-Claudius'sche Konstante. Freiburg, (Schweiz), 1900.

Zimmer, Fritz. Ueber einige aromatische O-Phosphine. Rostock, 1899.

Zimmer, M. Ueber Metalltitration mittelst Chromsäure. Freiburg, 1902.

Zimmerli, Fritz. Recherches sur la 3-acétamino-β-naphtoquinone. Genève, 1898.

Zimmermann, Philipp. Beiträge zur Elektrolyse fettsaurer Salze. (Giessen), [1899].

Zimmermann, Rudolf. Ueber einige Selenketone. Rostock, 1899.

Zinkeisen, Eduard. Ueber die Umlagerung von Ketazinen und Aldazinen in Pyrazolinderivate. Kiel, 1896.

Zinsser, Gustav. Ueber die Ueberführung der Hydrazide der n-Buttersäure und α-Naphtoësäure in heterocyklische Verbindungen. Heidelberg, 1901.

Zöhls Arthur. Über die Daniell'schen Ketten $Zn \mid Zn\,SO_4 \mid Cu\,SO_4 \mid Cu$ und $Zn \mid (NH_4)_2\,SO_4 \mid Cu\,(NH_3)_4\,SO_4 \mid Cu$. (Giessen). Wien, 1900.

Zöpfchen, Hermann. Beiträge zur Kenntniss der Isoxazole. Kiel, 1899.

Zohlen, Otto. Über die Einwirkung von Dimethylsulfat auf Michlersches Keton und Auramin. Giessen, 1902.

Zuckmayer, Fritz. Ueber einige Derivate der Naphtalsäure und des Acenaphtenchinons. (Basel). Mainz, 1898.

Zühl, Ernst. Beitrag zur Kenntniss der Albuminpeptone und ihrer Chlorhydrate. Erlangen, 1898.

Zundel, Charles. 1. Etude sur les produits de décomposition des diazoïmides aromatiques orthonitrées. 2. Recherches sur quelques nouveaux dérivés du triphénylméthane. 3. Condensation de l'acide diméthylmétamidobenzoïque avec la formaldéhyde. (Basel). Mulhouse, 1896.

Zwick, K. G. Ueber den Farbstoff des Orlean. Nebst Anhang. Würzburg, 1899.

Zwingenberger, Otto. Beiträge zur Kenntniss isomerer Methenyl-phenyl- tolyl- amidine. (Rostock). Dresden, 1898.

SUBJECT-INDEX.

Prepared by Mr. Axel Moth, of the New York Public Library, who read proof of the greater part of the Bibliography, the author, Doctor Bolton, having died November 19, 1903, while the work was in press.

This index is limited to special topics and does not include works of an encyclopedic character.

Sections I and III are partly self-indexed. Sections IV and VI, being entirely self-indexed, are not included.

Single letters and numerals denoting orientation and isomers are omitted in the index.

For terms beginning with Allo- and Ana-, see under the words to which these syllables are prefixed.

Words are spelled in accordance with the Rules adopted by the American Association for the Advancement of Science in 1891, and published by the United States Bureau of Education, Washington, D. C.

A

- Absinth. V. Sanglé-Ferrière, 166.
- Acenaphthene, Derivatives of. VIII. Haas, 285.
- Acenaphthene, Sulfonic acids of. VIII. Dessoulavy, 259.
- Acenaphthene-quinone and hydrazin hydrates. VIII. Herms, 291.
- Acenaphthene-quinone, Derivatives of. VIII. Zuckmayer, 396.
- Acenaphthoyl-ortho-benzoic acid. VIII. Perutz, 344.
- Acetaldoxim, Alkyl-ethers of. VIII. Berchin, 240.
- Acetamido-naphtho-quinone. VIII. Zimmerli, 395.
- Acetic acid. VIII. Scheuer, 360.
- Aceto-acetic esters. Hollerith, 296.
  - Acyl derivatives of. VIII. Spencer, 371.
  - and homologues, Action of phenoxy-acetyl-chlorid on. VIII. Claasz, 253
  - and methyl derivatives, Saponification of. VIII. Oslan, 342.
  - and phenols. VIII. Hanke, 287.
  - and sodium pyrotartrate. VIII. Dietzel, 260.
  - and sodium succinate. VIII. Eynern, 266.
- Aceto-diphosphorous acid. VIII. Heidepriem, 289.
- Aceto-nitril, Benzoyl derivatives of. VIII. Seidel, 368.
- Acetone condensation. VIII. Koelichen, 309.
- Acetone-dicarboxylic acid. VIII. Wolman, 393.
  - Benzylated. VIII. Schiess, 361.
- Acetone-dicarboxylic ester. VIII. Jerdan, 302.
  - and iso-diazo compounds. VIII. Höpfner, 295.
- Acetone-dipropionic acid. VIII. Sidgwick, 369.
- Acetone, Electrolysis of. VIII. Habel, 285.
- Acetone-oxalic ester and aldehydes. VIII. Vogel von Falckenstein, 384.
- Acetonyl-acetone. VIII. Gray, 281.
  - Dilactone from. VIII. Lentz, 319.
- Acetophenone and ethylic-phenoxy-acetate. VIII. Faber, Victor, 266,
- Acetophenone and furol. VIII. Podrajanski, 346.
- Acetophenone, Derivatives of. VIII. Braun, 247; Wasserzug, 386; Zembrzuski, 395.

Aceto-phenyl-glycin-ortho-carboxylic acid. VIII. Meusel, 330.
Acetoxim. VIII. Schapiro, 359.
Acetyl-acetone and formaldehyde. VIII. Croner, 256; Schneider, 363.
Acetyl-acetone and mono-halogen substituted ethers and ketones. VIII. March, 326.
Acetyl-acetone, Diketonic acid of. VIII. Stark, 373.
Acetyl-acetone, Ketone-lactone from. VIII. Stark, 373.
Acetyl-benzoyl-phenyl-glutaric ester. VIII. Hinniger, 293.
Acetyl-diphenyl-amin and chloro-acetyl-chlorid. VIII. Klünder, Udo, 308.
Acetyl-salicylic acid, Derivatives of. VIII. Fresenius, Remigius, 272.
Acetyl-tetra-hydro-quinolin and chloro-acetyl-chlorid. VIII. Klünder, Udo, 308.
Acetylene. I. Ludwig, 4; V. Ahrens, 39; Bernat, 51; Berthelot, 52; Breton, 60; Capelle, 64; Congrès. 71; Doman, 76; Dommer, 76; Dye, 79; Fenderl, 83; Frölich and Herzfeld, 88; Gibbs, W., 92; Girardville, 94; Henderson, 102; Hubert, P., 109; Lefèvre, 124; Lewes, 126; Liebetanz, 127; Malmborg, 131; Methoden, 136; Peters, F., 151; Scholtze, 169; Taschenbuch, 180; Thompson, G. F., 182; Vogel, 188. VII. Acetylen, 219; Album-annuaire, 219; Jahrbuch für Acetylen, 225; Kalender für Acetyleniker, 226; Kalender und Wegweiser, 226; Taschenbuch, 228. VIII. Kuhn, 314; Pollack, 347.
  Derivatives of. VIII. Gotsch, 280.
  Metal derivatives of. VIII. Küspert, 313.
Acetylene-dicarboxylic acid and bromin. VIII. Treibich, 381.
Acid amids, Stability in, and formation of salts from. VIII. Buchner, 250.
Acidimetry. V. Astruc, 44; Chabert, 66; Glaser, 94.
Acids and formaldehyde. VIII. Weber, Kurt, 386.
Acids of the aliphatic saturated series. VIII. Holzmann, Sigmund, 297.
Aconic acid. VIII. Frankenstein, 271; Metzing, 330.
Acridin. VIII. Arnold, W., 233.
Acridin series. VIII. Mühlhauser, 334; Naef, 336.
Acridinium. VIII. Maric, 327.
Acrolein. VIII Neuberg, 338.
  and hydroxylamin. VIII. Haarmann, 285.
Acrylic acid, Polymerization products of. VIII. Röhm, 354.
Acrylic ester. VIII. Wahl, 385.
  and hydroxylamin. VIII. Haarmann, 285.
Acyl-amids. VIII. Spiess, Paul, 372.
  and carbonyl-chlorid. VIII. Mettler, 330.
  and pyridin. VIII. Mettler, 330.
  Stability in, and formation of salts from. VIII Buchner, 250.
Acyl-diazo-imids and alcoholic sulfuric acid. VIII. Bruijn, 249.
Acyl-hydroxylamins and formaldehyde. VIII. Destraz, 259.
Acyl-malonic esters and benzylidene-aceto-acetic ester. VIII. Faber, Willy, 267.
Acyl-oxids. VIII. Spiess, Paul, 372.
Acyl-oxy-benzoic acid, Derivatives of. VIII. Goldberg, Irma, 279.
Adipinic acid. VIII. Loebell, 322.
  Aldehydes of. VIII. Liebig, 321.
  Hydrazid of. VIII. Darmstaedter, 257.
Affinity. I. Zeitschrift, 5. V. Guldberg, 97; Siegrist, 173.
Agricultural chemistry. (*See also* Fertilizers.) I. Biedermann, 1. II. Laboulaye, 8. V. Alino, 39; Altmann, 40; Baumhauer, 49; Berthelot, 52; Christensen, Odin, 67; Cousins, 72; Crouzel, 73; Dehérain, 74; Dymond, 79; Funk, 89; Giglioli, 93;

Agricultural chemistry. [Cont'd.] Hensel, 103; Hubert, A., 109; Ingle, 110; König, 116; Lagatu, 120; Larbalétrier, 122; Maas, 130; Mahrenholtz, 131; Mehring, 135; Milliau, 137; Odifredi, 144; Otto, 147; Pagel, 147; Passon, 148; Peyrone, 151; Rebello, 157; Ricerche, 159; Sachsse, 164; Sestini and Martelli, 171; Siats, 172; Smets, 174; Snyder, 174; Soave, 175; Studi, 178; Thoms, G., 182; Vacirca, 186; Westermann, 193; Wichelhaus, 193; Wilbrand, 194; Wolff, 196; Wollny, 197; Zeisel, 198. VII. Association, 220; Biedermann's Centralblatt, 221.
Alanin derivatives. VIII. Berg, Hans, 240.
Alantolactone. VIII. Sprinz, 372.
Albumen. VIII. Goret, 280.
  compounds. VIII. Krieger, 313; Schultze, Alb., 366.
  compounds, Crystallization of. VIII. Schulz, F. N., 366.
Albumin-peptone, Hydro-chlorids of. VIII. Zühl, 396.
Albuminous compounds. VIII. Meyer, Otto, 331.
Albumoses. VIII. Baumann, Carl, 238.
  from egg albumen. VIII. Merkel, 329.
Alchemy. (*See* Section VI.)
Alcohol in gastric contents. VIII. Viersen, 383.
Alcoholic fermentation and antiseptics. VIII. Knoesel, 308.
Alcohols and alcoholometry. (*See also* Distillation of liquors, Fusel oil, Wine.) III. Neumann, 19. V. Bedel, 49; Boizard, 57; Brüggemann, 61; Bücheler, 62; Dejonghe, 74; Gaber, 89; Giorgi, 93; Giralt, 93; Girard and Cuniasse, 94; Larbalétrier, 122; Légier, 124; Matthews, 134; Robinet, 161; Rocques, 161; Sebastian, 170; Sorel, 175; Springuel, 176; Trillat, 185. VIII. Cotte, 255.
Alcohols and formaldehyde. VIII. Weber, Kurt, 386.
Alcohols, Oxidation of. VIII. Trillat, 381.
Aldazin. VIII. Zinkeisen, 395.
Aldehyde-ammonia and cyano-acetic ester. VIII. Riedel, Frank, 352.
Aldehyde-collidin. VIII. Bach, 234; Castner, 253.
Aldehyde-phenyl-hydrazones, Oxidation of. VIII. Wienands, 391.
Aldehyde synthesis, Gattermann's. VIII. Steckhan, Ernst, 373.
Aldehydes. VIII. Favrel, 267; Hirschweh, 294.
  and alkyl-iodids, Condensation of. VIII Schwab, 366.
  and benzyl-cyanid. VIII. Henze, 291.
  and cyano-acetic ester. VIII. Riedel, Frank, 352.
  and ethyl-amin. VIII. Andrée, 232.
  and methyl-amin. VIII. Andrée, 232.
  Aromatic. VIII. Baermann, 235; Berchelmann, 240; Eggers, 263; Frenzel, 272; Graf, Wilhelm, 281; Hübner, 297; Koebner, 309; Löwy, 323; Lühder, 324; Rupp, 357; Wehrmann, 387.
  Aromatic, and hydrogen cyanid. VIII. Biach, 242.
  Cyano-hydrins of. VIII. Gross, 283.
  Estimation of. VIII. Volkholz, 384.
  Formation of acetals from. VIII. Lehmann, Willy, 318; Raben, 349.
  in alcohol. VIII. Paul, Josef, 344.
  phenols and aromatic amins, Condensation of. VIII. Claisen, 253.
  with double and triple carbon bonds. VIII. Levy, Paul, 320.
Aldehydic acids. VIII. Ach, 230.
  Aliphatic and aromatic. VIII. Herbst, 291.

Aldoxims. VIII. Lommel, 323.
  Aromatic, and aromatic and aliphatic iso-cyanates. VIII. Nierop, 339.
  Nitrogen-alkyl substituted. VIII. Löscher, 322.
Aliphatic acids. V. Garraud, 90. VIII. Gellerstedt, 277; Herzog, Eduard, 292.
  Electrolysis of the salts of. VIII. Zimmermann, Philipp, 395.
  Polybasic, and malonic ester. VIII. Full, 274.
Aliphatic alcohols, Electrolytic tion of. VIII. Brunner,
Aliphatic amins and phosphorus- chlorid. VIII. Hülsberg
Aliphatic bromo-amins. VIII. Br 249.
Aliphatic compounds, Acetyl-amido-hydrazones of. VIII. Grob, 282.
atic diazo-amido compounds. VIII. Osborne, Wilhelm, 342.
Aliphatic series, Hydrazo- and azo compounds of. VIII. Heuser, Karl, 292.
Aliphatic volatile acids, Separation of. VIII. Scheuer, 360.
Alkali metals, Amalgams of. VIII. Winter, H, 392.
Alkali salts of hydrogen-dioxid in aqueous solutions. VIII. Calvert, 252.
  of non-metallic and metallic acids. VIII. Weinland, 387.
Alkalimetry. V. Astruc, 44; Glaser, 94.
Alkaloids. V. Barnay, 47; Bocquillon-Limousin, 56; Brühl, 61; Causse, 66; Ecalle, 79; Pictet, A., 152; Schmidt, Julius, 168; Springer, 176. VIII. Astruc, 233; Bölling, 244; Causse, 253; Greimer, 281; Proelss, 348; Springer, 372.
  Alkyl derivatives of. VIII. Rosenstein, 356.
  Mydriatic. VIII. Henschke, 291.
Alkins. VIII. Brandt, Leopold. 247.
Alkoxy-aldehydes, Aromatic. VIII. Theiler, 379.
Alkoxy-ketones, Aromatic. VIII. Theiler, 379.
Alkoxy-quinolin. VIII. Gentzen, 277.
Alkoyl-chlorids. VIII. Häussermann, 286.
Alkyl-acridones. VIII. Gloz, 278.
Alkyl-aldoxims. VIII. Wagner, Horst, 385.
  Halogen derivatives of. VIII. Ebert, 263.
Alkyl-aniiins, Ortho substituted. VIII. Mühlstein, 334.
Alkyl-arseno-benzoic acids. VIII. Eppenstein, 265.
kyl-glutaric acid. VIII. Betteridge, 241.
kyl-glycolic acid, Hydrazids and azids of. VIII. Laan, 315.
kyl-malonic esters and hydrazin hydrate. VIII. Cäsar, Wilhelm, 252.
kyl-naphtho-quinolin. VIII. Traub, 381.
Alkyl-ortho-toluidin. VIII. Blumer, 244.
Alkyl-phenyl-hydrazin. VIII. Ilmer, 299; Robisch, 353.
Alkyl-pyridones and phosphorus-penta-chlorid. VIII. Hörger, 295.
Alkyl-succinic acid. VIII. Betteridge, 241.
Alkyl-tolu-quinolones and phosphorus-penta-chlorid. VIII. Dreverhoff, 261.
Alkylene-oxids. VIII. Lehmann, 318.
Alkylidene-desoxy-benzoin, Hydrogen chlorid addition products of. VIII. Tetzner, 378.
Allene, Phenylated. VIII. Wieland, 391.
Allene-carboxylic acid. VIII. Krüger, Gerhard, 313.
Allotropism. VIII. Naquet, 337.
Alloys. V. Austen, 46; Buchanan, 62; Hiorns, 105. VIII. Berdel, 240.
Allyl-aceto-acetic ester and nitric oxid. VIII. Vogel, Julius, 384.
Allyl-acetone. VIII. Stechele, 373.
Allyl-alcohol and bromin. VIII. Fink, 268.

Allyl-alcohols, Secondary. VIII. Fournier, 270.

Almond soap. VIII. Barrué, 236.

Aloes. VIII. Klaveness, 307; Pedersen, 344.

Alphyl-nitroso compounds. VIII. Sand, Henry, 358.

Alum. V. Geschwind, 92.

Aluminium. V. Benoit, 50; Formenti, 86; Milde, 137; Minet, 138; Tetmajer, 181. VIII. Baldy, 235.

- Alloys of. VIII. Guillet, 284.

Aluminium amalgam, Reduction of the ethylenic double bonds by. VIII. Henle, Franz, 290.

Aluminium chlorid. VIII. Krahé, 312; Mercklin, 329.

Aluminium oxalates. VIII. Cohn, Ludwig, 254; Platsch, 346.

Aluminium, Salts of. VIII. Collin, Aug., 254.

Aluminium silicates. VIII. Kasai, 305.

Aluminium, Specific heat of. VIII. Bontschew, 245.

Amalgams. V. Ogg, 145. VIII. Ferée, 268; Langbein, 316.

Amarin, Derivatives of. VIII. Löwy, Max, 323.

Amidins. VIII. Peschges, 344.

Amido-acetals, Secondary. VIII. Gember, 277.

Amido-acetones, Disubstituted. VIII. Dzimski, 262.

Amido-acetyl-acetone and ethyl-nitrite. VIII. Riffart, 352.

Amido acids. V. Mallet, 131. VIII. Beindl, 239.

- and thio-carbimids. VIII. Aschan, 233.
- Aromatic. VIII. Heidrich, 289.
- Organic, and phenyl-iso-cyanate VIII. Ganser, 276.

Amido-alcohols. VIII. Strauss, Eduard, 376.

Amido-azo-benzene-tri-sulfonic acid. VIII. Neumann, Max, 338.

Amido-azo compounds. V. Buss, 63; VIII. Heinze, 290.

Amido-azo dyestuffs. VIII. Bürkle, 250.

Amido-benzene-sulfonic acids, Alkali salts of. VIII. Krell, 312.

Amido-benzene-sulfonic acids, Alkylated. VIII. Scheutz, 360.

Amido-benzoic acid. VIII. Bauer, Rudolph, 237.

- Action of halogen alkyls on the potassium salts of. VIII. Zeiss, 394.
- Steric influences in the reaction of. VIII. Eberhard, 263.

Amido-bromo-quinolin. VIII. Caesar, Hermann, 252.

Amido-butyl-aldehyde-acetal. VIII. Schaefer, 359.

Amido-chloro-ketones, Aromatic. VIII. Treutler, 381.

Amido compounds and oxalic ester. VIII. Müller, Wilhelm, 335.

Amido-crotonic ester. VIII. Strauss, Emanuel, 376.

- and ethyl-nitrite. VIII. Strecker, 376.

Amido-diethyl-ketone. VIII. Jänecke, 301.

Amido-ethyl-methyl-acetic acid. VIII. Juslin, 304.

Amido-ketones, Aromatic. VIII. Herwig, 291.

Amido-naphtho-quinolin. VIII. Plack, 346.

Amido-naphthols, Derivatives of. VIII. Schalk, 359.

Amido-para-oxy-quinolin, Chlorination and diazotization products of. VIII. Wiederhold, 390.

Amido-phenanthrene-quinones. VIII. Meyer, Peter, 331.

Amido-phenols, Alkali salts of. VIII. Krell, 312.

Amido-phenols and ethylic chloro-carbonate. VIII. Grönvik, 282.

Amido-phenols, Oxidation of. VIII. Czerkis, 256.

Amido-phenyl-triazol. VIII. Benack, 239.

Amido-propionic aldehyde. VIII. Wohlberg, 393.

Amido-pyridin. VIII. Preuss, 348; Pugin, 348.

Amido-quinaldins, Halogen alkylates of. VIII. Weil, Leopold, 387.
Amido-quinolin. VIII. Frobenius, Walther, 274; Tunks, 381.
Amido-sulfonic acid and tetra-halogen substituted quinones. VIII. Pagès, 343.
Amido-valerianic acid, Normal. VIII. Juslin, 304.
Amidon, Saccharification of. VIII. Poitevin, 347.
Amids. V. Delépine, 74; Mallet, 131; VIII. Baillie, 235.
  of tribasic aliphatic acid. VIII. Schneider, Alb., 363.
Amin salts, Dissociation of. VIII. Dieffenbach, 260.
Amino-azo compounds. VIII. Bergmann, 240.
Amino-camphor, Decomposition products of. VIII. Pritzkow, 348.
Amino-carboxylic acid, Nitroso compounds of. VIII. Schrödter, 365.
Amino-crotonic ester. VIII. Buchholz, 250.
  and phenyl-iso-cyanate. VIII. Meyer, Ferdinand, 330.
Amino-diethyl-carbinol. VIII. Jänecke, 301.
Aminolysis. VIII. Mündler, 336; Salcher, 357.
Amino-phenyl-benzimid-azols, Three isomeric. VIII. Miklaszewski, 331.
Amino-pyrrolidin. VIII. Schaum, 359.
Amino-quinones. VIII. Bahatrian, 235.
Amins. V. Delépine, 74.
  Acylated aromatic, and carbonyl-chlorid. VIII. Gartzen, 276.
  Aliphatic and aromatic, and thiophosphoryl bromid. VIII. Pape, 343.
  Aliphatic secondary. VIII. Lepel, 319.
  and alkyl-iodids, Condensation of. VIII. Schwab, 366.
  and dibromo-tri-acetone-amin. VIII. Boehm, 244.
Amins and palmityl and stearyl-chlorids. VIII. Ortmeyer, 341.
  Aqueous solutions of. VIII. Sebaldt, 367.
Amins, Aromatic. VIII. Heidrich, 289; Ostoja, 342.
  and cyanogen. VIII. Meves, 330.
  and metallic salts. VIII. Tombeck, 380.
  and the three isomeric dibromo-pyro-tartaric acids. VIII. Vortisch, 384.
  Chloro-acetyl and bromo-propionyl derivatives of. VIII. Hecker, 289.
  Phosphorus derivatives of. VIII. Roeber, Curt, 354.
Amins, Condensing action of. VIII. Stang, Ad., 373.
  Electrolytic oxidation of. VIII. Christeller, 253.
  of the aromatic series and pyro-phosphoryl-chlorid. VIII. Ladewig, 315.
  of the camphor series and thionyl-chlorid. VIII. Jörgensen, 303.
  Organic. VIII. Mottek, 333.
  Ortho-substituted tertiary. VIII Danziger, A., 257.
  Primary aliphatic, and phosphoryl-chlorid. VIII. Müller, Friedrich, 334.
  Primary, and sodium-hybromite. VIII. Nottebohm, 339.
  Secondary aliphatic, and chloro-acetal. VIII. Prall, 347.
  Secondary aliphatic, and pyro-phosphoryl. VIII. Schütte, Wenzel, 365.
  Secondary aliphatic, Phosphorus derivatives of. VIII. Schalhorn, 359.
  Secondary aliphatic, and phosphoryl bromid. VIII. Schall, Ad., 359.
  Secondary, and gaseous nitrous acid. VIII. Hoffmann, Paul, 295.
  Secondary, and lead tetra-chlorid. VIII. Jerwitz, 302.

Amins, Secondary, and silicon-tetrachlorid. VIII. Jerwitz, 302.
Secondary, and tertiary, and thionyl-chlorid. VIII. Schindler, 361.
Secondary, and tin-tetra-chlorid. VIII. Jerwitz, 302.
Ammonia. V. Billon, 54; Lunge, 130; Vincent, 188.
Aqueous solutions of. VIII. Goldschmidt, Franz, 279; Sebaldt, 367.
compounds of metals. VIII. Luc, 324.
Condensing action of. VIII. Stang, Ad., 373.
Solubility of. VIII. Riesenfeld, 352.
Ammoniac. VIII. Weber, Cornelius, 386.
Ammoniacal arseniates of nickel and cobalt. V. Ducru, 77.
compounds. VIII. Jarry, 302.
Ammonium-aryl-dithio-carbamates, Desulfurization of. VIII. Bauer, Wilhelm, 237.
Ammonium bases of cobalt, chromium, and platinum. VIII. Klien, 307.
Ammonium persulfate. VIII. Illig, 299.
Ammonium salts. VIII. Horn, 297.
Cyclic asymmetric. VIII. Oechslen, 340.
Organic. VIII. Brendler, 248.
Ammonium-silico-vanadio-molybdates. VIII. Castendyck, 252.
Amphopeptone. VIII. Mühle, 334.
Analytical chemistry. (*See also* Volumetric analysis) III. Koninck, 17. V. Abegg and Herz, 38; Ahrens, 39; Alessandri, 39; Allen, 39; Alquier, 40; Arnold, 42; Autenneth, 46; Bartolotti, 48; Beilstein, 50; Benedict, 50; Biais, 52; Biltris, 54; Birnbaum, 54; Blas, 55; Böttger, W., 57; Bomboletti, 57; Briggs, 60; Brunner, 61; Buchka, 62; Carmody, 65; Casoria, 65; Classen, 68; Classen and Löb, 68; Clowes, 69; Clowes and Coleman, 69; Congdon, 71; Coppock, 71; Crobaugh, 72; Cuniasse, 73; Denigès, 74; Dennstedt, 75; Duparc, 78; Eliot, 80; Elliot, 80; Erp, 82; Evans, 82; Fileti, 83; Fitzgerald, 85; Fleurent, 85; Frécault, 87; Fresenius, C. R., 87; Gadola, 89; Garbarini, 89; Girard, J., 94; Graebe, 95; Guareschi, 97; Haselbach, 100; Henderson and Parker, 102; Henninger, 103; Highton, 104; Hlasiwetz, 105; Huysse, 110; Irish, 111; Jacobsen, 111; Jones, C., 113; Knight, 116; Koefoed and Scherning, 116; Kohlhammer, 117; Koninck, 118; Krauch, 118; Kühling, 119; Ladd, 120; Lunge, 130; Medicus, 135; Miller, Edmund, 137; Miller, Wilhelm, 137; Muller, 140; Muspratt, 141; Muter, 141; Neumann, 142; Newth, 143; Noyes, William, 144; Ostwald, 146, 147; Paoli, 147; Pechmann, 149; Perkin, F., 150; Pozzi-Escot, 154; Prescott and Johnson, 155; Prost, 155; Riban, 159; Rijn, 161; Rockwood, 161; Salazar, 164; Schmidt, E., 168; Schoorl, 169; Seldis, 171; Sellers, 171; Sestini, 171; Smits, 174; Specketer, 175; Spica, 176; Städeler, 176; Sundvik, 179; Tabellen, 179; Talbot, 180; Tellera, 180; Todaro, 183; Topsöe, 184; Treadwell, 184; Tümpel, 185; Ulzer, 186; Valentin, 186; Venable and Wheeler, 187; Venturoli, 187; Villiers, 188; Volhard, 188; Vortmann, 189; Wagner, 190; Wallach, 190; Wells, Horace, 192; Wells, J. S. C., 192; Weselsky, 193; Wills, 195; Winkler, 195; Wolfrum, 197.
Analytical chemistry. [Cont'd.]
Anesthetics. VIII. Oppenheimer, Max, 341.

Anethol and analogous compounds with a propenylic side chain, Oxidation of. VIII. Bougault, 246.
  Nitrogenous condensation products of. VIII. Cohén, 254.
  Polymeric modifications of. VIII. Cohén, 254.
Anhydrids of glutaric acid series, Reduction of, to lactones. VIII. Beisswenger, 239.
  of succinic acid series, Reduction of, to lactones. VIII. Beisswenger, 239.
Anhydrobases. VIII. Miklaszewski, 331.
Anhydro-dibenzyl-ketone-benzil. VIII. Fritzsche, 274.
Anhydro-ecgonin. VIII. Oppenheimer, Max, 341.
Anhydro-ennea-heptit. VIII. Apel, 232.
Anhydro-formaldehyde-anisidin, Derivatives of. VIII. Sommer, Richard, 371.
Anhydro-oxy-cobaltiac salts. VIII. Mylius, 336.
Anilic-acetic esters and sodium ethoxid. VIII. Mouilpied, 333.
Anilids. VIII. Wachs, 385.
  Formations of. VIII. Bräuer, 246.
Anilin and acetone-dicarboxylic ester. VIII. Garben, 276.
Anilin and nitro-benzene. VIII. Aue, 234.
Anilin, Basic nitroso compounds of. VIII. Forsberg, 270.
Anilin, Benzylated, Sulfonic acids of. VIII. Joseph, 303.
Anilin, Ethylated. VIII. Gruschwitz, 283.
Anilin, Halogen substituted. VIII. Petermann, 344.
Anilin, Oxidation of. VIII. Tschirner, 381.
Anilin-azo-acetyl-acetone. VIII. Schlotterbeck, 362.
Anils. VIII. Mayer, R., 328; Pabst Robert, 343.
Animal charcoal and solutions of alkaloids. VIII. Laval, 317.
Animal refuse, Utilization of. V. Haefcke, 98.
Anions, Complex. VIII. Maass, Theodor, 325.
Anisaldehyde and aldehyde-collidin. VIII. Bialon, 242.
Anisaldehyde and picolin. VIII. Bialon, 242.
Anisaldehyde and quinaldin. VIII. Bialon, 242.
Anisenyl-tetra-azotic acid. VIII. Colman, 255.
Anisoyl-aceto-acetic ester. VIII. Schoonjans, 364.
Anisyl-dithio-carbazic acid. VIII. Best, Friedrich, 241.
A atto. VIII. Zwick, 396.
A hracene, Derivatives of VIII. Schepper, 360.
A hracene-mono-sulfonic acid. VIII. Heffter, 289.
Anthragallol, Halogen derivatives of. VIII. Slama, 370.
Anthranilic acid. VIII. Mehner, 328.
  and chloro-acetic acid. VIII. Mumme, 336.
  and ortho-nitro-benzyl-chlorid. VIII. Jacoby, Paul, 300.
  Derivatives of. VIII. Frischknecht, 274.
Anthraquinone. VIII. Perlin, 344.
Antidiphteritic serum. VIII. Müller, Felix, 334.
Antimony, Aromatic compounds of. VIII. Hasenbäumer, 288.
Antimony, Bismuth in. VIII. Godfrin, 278.
Antimony-alkali-metal-sulfates. VIII. Gutmann, 284.
Antimony-penta-chlorid, Double salts of. VIII. Schlegelmilch, 361.
Antimony-penta-fluorid. VIII. Redenz, 350.
Antimony-penta-sulfid. VIII. Klenker, 307.
Antimony, Pentavalent halogen compounds of. VIII. Stellmann, 374.
Antimony trioxid and halogen compounds of polyvalent metals. VIII. Gruhl, 283.
Antipyrin. VIII. Rossmann, 350.

Antipyrin and bromin. VIII. Goyon, 280.
  and hydrazin. VIII. Müller, Fritz, 335.
  Imido derivatives of. VIII. Gunkel, 284.
Antipyrin-carboxylic acid. VIII. Sudendorf, 377.
Apigenin. VIII. Oenicke, 340.
Apocamphanic acid. VIII. Jagelki, 301.
Apocamphoric acid. VIII. Jagelki, 301.
Apomorphin. VIII. Jaeckel, 301.
Araban in plants. VIII. Browne, 249.
Arabinose, Polarization of. VIII. Faber, Oswald, 266.
Argon. VIII. Schultze, H., 366; Steudel, 375.
Aromatic acids, Electrical conductivity of. VIII. Pip, 346.
Aromatic alcohols, Synthesis of, by Formaldehyde. VIII. Behn, Konrad, 239.
Aromatic alcohol acids, Arylsulphonated. VIII. Budde, 250.
Aromatic aldehydes. *See* Aldehydes, Aromatic.
Aromatic amido- and hydroxy compounds and sulfites. VIII. Bucherer, 250.
Aromatic amido compounds, Chloroacetyl derivatives of. VIII. Grothe, 283.
Aromatic amins. *See* Amins, Aromatic.
Aromatic bases, Oxidation of. VIII. Tschirner, 381; Vuk, 385.
Aromatic compounds. V. Schmidt, Julius, 168. VIII. Oderfeld, 340.
  and aluminium. VIII. Rahtjen, 349.
  and ether. VIII. Raeder, 349.
  and mercuric salts. VIII. Metzger, 330.
  Direct introduction of mercury in. VIII. Dimroth, 260.
Aromatic nitro compounds. VIII. Zehrlaut, 394.
Aromatic nitro compounds, Electrolytic reduction of. VIII. Silbermann. 369.
Arrow poison. VIII. Menvielle, 329.
Arsenic. V. Arsenic, 43; Ducru, 77; Wanklyn, 191. VIII. Müller, Max, 335.
  and antimony, Quantitative separation of. VIII. Stock, 375.
  Electrochemistry of. VIII. Schulze, Wilhelm, 366.
  in beer. V. Kelynack, 115.
Arsenic-penta-sulfid and alkalies. VIII. Lehmann, Paul, 318.
  and sodium ethoxid. VIII. Lehmann, Paul, 318.
Arsenic-sulfur compounds. VIII. Tobiæson, 380.
Arsenic-trioxid and halogen compounds of polyvalent metals. VIII. Gruhl, 283.
Arsenic yellow. VIII. Unruh, 382.
Arsenids of the alkaline earth metals. VIII. Lebeau, 318.
Arseno-betains, Aromatic. VIII. Ulrich, Karl, 382.
Arsins, Tertiary aromatic. VIII. Krahe, 312; Weiss, Emil, 388.
Arsonium compounds, Aromatic. VIII. Ulrich, Karl, 382.
Aryl-azo-aceto-aldoxims. VIII. Frei, Joh., 272.
Aryl-hydroxylamin and ketones. VIII. Scheiber, 360.
Aryl-hydroxylamin and sulfur dioxid. VIII. Bretschneider, 248.
Aryl-hydroxylamin, Conversion of, into amido-phenols. VIII. Brady, 246.
Aryl-phosphins. VIII. Albert, Max, 231.
Auramin and methylic sulfate. VIII. Zohlen, 396.
Ashes. VIII. Shuttleworth, 369.
Asparagin. VIII. Kreichgauer, 312.
Asparaginic acid, Hydrazid of. VIII. Jansen, 301.
Asphalt. VIII. Jacunski, 301.
Assaying. (*See also* Mining.) V. Beringer, 51; Brown, 60; Fisk, 85; Miller, Alfred, 137; Rhead, 159.
Asymmetric meta-dichloro-iodo-benzene, Derivatives of. VIII. Böllert, 244.

Atmosphere. III. Phipson, 20. V. Blücher, 56; Boyle, 59; Cowell, 72; Henriet, 103; Lavoisier, 123; Passily, 148; Stoppani, 178; Zacchi, 198. VIII. Tassily, 378.

Atomic groups, Migration of. VIII. Körber, 310.

Atomic theory. III. Roscoe, 21. V. Platner, 153.

Atomic weights. II. Panaotovic, 10. V. Caruso, 65; Dulk, 78; Frébault, 87; Herz, 103; Hinrichs, 105; Hoff, 106; Kreusler, 118; Seubert, 171. VIII. Bredt, 248.

Augite. VIII. Becker, Gustav, 238.

Azammonium compounds. VIII. Raillard, 349.

Azimids. VIII. Feubel, 268.

Azin-scarlet VIII. Haueisen, 288.

Azins. VIII Barche, 235; Barth, Theodor, 236; Meigen, 329.

  and methyl-sulfate. VIII. Pollitzer, 347.

Azo compounds, Mixed. VIII. Schlotterbeck, 362.

Azo Dyestuffs. VIII. Bülow, 250; Danziger, A., 257; Keller, Hans, 306; Ostersetzer, 342; Wiscott, 392.

Azo-anisol. VIII. Starke, 373.

Azo-benzene, Nitro derivatives of. VIII. Stiasny, 375.

Azo-diazo-benzene and sulfur-dioxid. VIII. Kunze, 314.

Azo-diazo-toluene. VIII. Kunze, 314.

Azo-phenols and amido-phenols of the diphenyl series. VIII. Oesterlin, 340.

Azo-phenylene, Nitro derivatives of. VIII. Meigen, 328.

Azols, Toxicology of. VIII. Joanin, 302.

Azonium bases. VIII. Chrometzka, 253.

Azonium compounds. VIII. Becker, H., 238; Helwig, 290; Peyau, 345; Valencien, 382.

Azoxy-benzene, Nitro derivatives of. VIII. Stiasny, 375.

B

Balata. V. Brannt, 59; Clouth, 69.

Barbituric acid. VIII. Weinschenk, 388.

Bauxite. V. Benoit, 50.

Beer and brewing. III. Michel, 19. V. Art of brewing, 43; Bater, 48; Combrune, 71; Dyson, 79; Goupil, 95; Hantke, 99; Krandauer, 118; Langer, 122; Leyser-Heiss, 126; Lindet, 127; Lintner, 127; Michel, 137; Noel, 144; Prior, 155; Schifferer, 168; Schwarz, 170; Springuel, 176; Thausing, 181; Wahl and Henius, 190; Windisch, 195. VII. Annuaire, 220; Jahrbuch der Versuchs- und Lehranstalt, 225.

Beer wort. VIII. Straub, 376.

Beeswax. VIII. Wellenstein, 389.

Beet sugar molasses. VIII. Schöne, 364.

Benzaldehyde and sodium-tri-carballylate in the presence of acetic anhydrid. VIII. Sternberg, 375.

Benzal-desoxy-benzoins and ethylic succinate. VIII. Niedenzu, 339.

Benzal-diphenyl-itaconic acids, Stereoisomeric. VIII. Naoum, 336.

Benzal-malonic ester and hydrogen cyanid. VIII. Lüttgen, 324.

Benzal-phenyl-hydrazone. VIII. Pickard, 346.

Benzamarone. VIII. Weiss, Richard, 388.

Benzamidin. VIII. Laudon, 317.

  and aromatic halogen ketones. VIII. Matz, 327.

Benzamids and aromatic aldehydes. VIII. Bauer, Rudolph, 237.

Benzamids and dihalogen-ketones. VIII. Bauer, Rudolph, 237.

Benzazooxazin. VIII. Goldberg, Salomon, 279.

Benzene. V. Mitscherlich, 138.

  and alkyl groups. VIII. Klages, 307.

  and chlorin monoxid. VIII. Noerr, 339.

Benzene, Azo and azoxy derivatives of. VIII. Pitschke, 346.
  derivatives. V. Woringer, 197.
  derivatives and aliphatic compounds. VIII. Goose, 280.
  derivatives, Double ortho substituted. VIII. Sohn, 371.
  derivatives, Methyl groups in. VIII. Heyl, Fritz, 292.
  derivatives, Vapor tension of. VIII. Tesse, 378.
  in paraffine oil and water, Absorption of. VIII. Müller, Eberhard, 334.
  Iodine derivatives of. VIII. Arnold, Emil, 233.
  Metal derivatives of. VIII. Küspert, 313.
  ring. VIII, Lickroth, 321.
  ring and alkyl. VIII. Storp, 376.
  series, Nitro- and nitroso derivatives of. VIII. Dietschy, 260.
Benzene-hydro-carbons and aluminium-chlorid. VIII. Nœrr, 339.
Benzene-hydro-carbons and cyanogen-bromid. VIII. Nœrr, 339.
Benzene-sulfone-piperidin and fuming nitric acid. VIII. Wangnick, 386.
Benzene-sulfonic acid. VIII. Wilke, 391.
Benzenyl-dioxy-tetrazotic acid. VIII. Groneberg, 282.
Benzenyl-tetrazotic acid. VIII. Statins, 373.
Benz-hydroxamic acid, Derivatives of. VIII. Rachmilewitz, 348.
Benzidin, VIII. Friebel, 272; Wagner, 385; Wohlfahrt, 393.
Benzil and ethylic succinate. VIII. Russwurm, 357.
Benzil, Azonium bases derived from. VIII. Natcheff, 337.
Benzilic acid. VIII. Lonnes, 323; Nickell, 338.
  and mono-hydroxylic phenols. VIII. Geipert, 276.
  and phenols. VIII. Nowakowski, 339.
Benzoic acid. VIII. Lamouroux, 315.
Benzoic anhydrid and sodium-carballylates. VIII. Salomon, 358.
Benzoin. VIII. Arndts, 233; Heckel, 289
Benzo-phenone-ortho-sulfonic acid VIII. Krannich, 312.
Benzo-phenones, Derivatives of. VIII. Dinglinger, 260.
  Imins of. VIII. Keller, Ferd., 306.
  Derivatives of. VIII. Grotowsky. 283; Wagner, H., 385.
Benzo-quinone-carboxylic acid. VIII. Nef, 337.
Benz-oxy-acetic acids, Three isomeric. VIII. Reischbach, 351.
Benzoyl-aceto-acetic ester, Derivatives of. VIII. Schoonjans, 364.
Benzoyl-acetone. VIII. Siegfried, 369.
Benzoyl-butyric acid. VIII. Benöhr, 239.
Benzoyl-iso-butyric acid and pyridazin derivatives. VIII. Oppenheim, 341.
Benzoyl-propionic acid, Unsaturated lactone of. VIII. Sulzberger, 377.
Benzyl-amin and chlorin compounds of phosphorus. VIII. Schroembgens, 365.
Benzyl-biguanid. VIII. Beutel, 242.
Benzyl-cyanid and aldehydes. VIII. Stelling, 374; Wetzlich, 390.
Benzyl-cyanid and opianic acid, Condensation of. VIII. Stelling, 374.
Benzyl-hydroxylamin. VIII. Schönermark, 364.
Benzyl-iso-nitro-methane. VIII. Heinemann, 289.
Benzyl-isoquinolin. VIII. Albrecht, Ernst, 231; Friling, 273; Schaumann, 359.
Benzyl-malonic-hydrazid. VIII. Mott, 333.
Benzyl-phenyl-hydrazin and ethylic chloro carbonates. VIII. Lütgert, 324.
Benzyl-tetra-hydro-iso-quinolin. VIII. Schaumann, 359.
Benzylidene-acetophenone and ethylic succinate. VIII. Russwurm, 357.

Benzylidene-anilin and cuminol. VIII. Gerngross, 277.
Benzylidene-anilin, Derivatives of. VIII. Bruhn, Bruno, 249.
Benzylidene-bis-aceto-aceticester. VIII. Rabe, 349.
Benzylidene-methyl-amin VIII. Kollegorsky, 311.
Betain in plants containing caffeïn and theobromin. VIII. Görte, 278.
Beverages. I. Patent Office, 5.
  Adulteration of. V. Hébert, 101.
  Carbonated. V. Deschamps, 75; Sorel, 175; Wender, 193.
Bibliography. (*See* Section I.)
Biguanids, Disubstituted. VIII. Cramer, 256.
Bihydro-carvone, Oxidation products of. VIII. Scharpenack, 359.
Biliary pigments. VIII. Köster, 310.
Binaphtol. VIII. Fosse, 270.
Bindone group. VIII. Ephraim, 265.
Biological chemistry. V. Mazé, 134.
Biphenols. VIII. Bibergeil, 242.
Biphenyl derivatives. VIII. Bielecki, 242.
Biphenyl, Ortho-nitro derivatives of. VIII. Forgan, 270.
Biphenyl-biphenylene-ethane. VIII. Lonnes, 323.
Bis-azoxy-acetic acid. VII. Lehmann, Martin, 318.
Bis-azoxy-methane. VIII. Lehmann, Martin, 318.
Bismuth. VIII. Hauser, 288; Wimmenauer, 391.
  and phenols. VIII. Richard, 351.
  Peroxids of. VIII. Deichler, 258.
Bismuth-chromates. VIII. Godfrin, 278.
Bismuth-nitrates. V. Rutten, 164.
Bismuth-oxy-iodids. VIII. Godfrin, 278.
Bismuthic acid and hydro-fluoric acid. VIII. Lauenstein, 317.
Bisterpene, Synthesis of. VIII. Kaiser, 304.
Bleaching. *See* Dyeing.
Blood. V. Calugareanu, 64.
Blood albumen. VIII. Murach, 336.
  Products of the alkaline hydrolysis of. VIII. Lang, Otto, 316.
Blood-serum. VIII. Reiss, 351.
Blowpipe analysis. (*See also* Assaying.) V. Botta, 58; Fletcher, E., 85; Getman, 92; Landauer, 121; Plattner, 153; Redlich, 157.
Boiler incrustations. V. Schleh, 168.
Bones. V. Friedberg, 88.
Boric acid. VIII. Rose, Joh., 355.
  Acid esters of. VIII. Neuberg, 338.
  Estimation of. VIII. Beermann, 238.
Borneol. VIII. Jahn, Stephan, 301.
Bornylamin. VIII. Preu, 348.
n and phenols. VIII. Richard, 351.
Boron-benzoic acid. VIII. Richter, Ernst, 352.
Boron-bromids, Aromatic. VIII. Richter, Ernst, 352.
Boron-imid. VIII. Blix, 243.
Boron-tri-bromid. VIII. Tarible, 378.
Brazilin. VIII. Erck, 265.
Bread. V. Atwater, H., 44; Snyder and Voorhees, 175; Woods and Merrill, 197.
Bromal, Nitrogenous derivatives of. VIII. Vincent, 383.
Bromids of the alkaline earth metals, Electrolysis of. VIII. Sarghel, 358.
Bromin, Spectroscopic determination of. VIII. Friedländer, Siegfried, 273.
Bromins. VIII. Alffers, 231.
Bromo-acetanilid and pyridin. VIII. Scheda, 360.
Bromo-acetanilid and quinolin. VIII. Scheda, 360.
Broma-acetanilid and tri-methyl-amin. VIII. Scheda, 360.
Bromo-acetic acid. VIII. Coebergh, 254.
Bromo-acetophenone and bases. VIII. Ark, 232.
Bromo-acetophenone and pyridin. VIII. Scheda, 360.
Bromo-acetophenone and quinolin. VIII. Scheda, 360.
Bromo-acetophenone and tri-methyl-amin. VIII. Scheda, 360.
Bromo-acetophenone-oxim. VIII. Korten, 311.

Bromo-acrolein. VIII. Stock, 375.
Bromo-allo-cinnamic acid. VIII. Manthey, 326.
Bromo-amido-quinolin. VIII. Hillkowitz, 293.
Bromo-anilic acid and hydrazins. VIII. Descomps, 259.
Bromo-cinnamic-aldehyde. VIII. Weigand, 387.
Bromo-diazonium-chlorids. VIII. Smythe, John, S , 371.
Bromo-diphenic acid. VIII. Erler, 266.
Bromo-ethoxy-nitro-flavone, Syntheses of. VIII. Rozycki, 356.
Bromo-flavone. VIII. Ludwig, Albert, 324.
Bromo-gelatins. VIII. Schellen, 360.
Bromo-hemi-mellithic acid. VIII. Dessoulavy, 259.
Bromo-indone. VIII. Schlossberg, Siegfried, 362.
Bromo-ketones, Aromatic. VIII. Scheven, 360.
Bromo-mesaconic acid. VIII. Schomann, 364.
Bromo-methacrylic acid. VIII. Morschöck, 333.
Bromo-nitroso-hydro-carbons. VIII. Stock, 375.
Bromo-opianic acid and cyano-acetic acid. VIII. Sienicki, 369.
Bromo-phenanthrene-quinone. VIII. Schütz, 365.
Bromo-phenols and nitrous acid. VIII. Dahmer, 256.
Bromo-phenyl-butyro-lactone and caustic soda solution. VIII. Stadlmayr, 372.
Bromo-phenyl-glyoxylic-dicarboxylic acid. VIII. Dessoulavy, 259.
Bromo-picrin and potassium cyanid. VIII. Brenneisen, 248.
Bromo-propyl-amin, Derivatives of. VIII. Uedinck, 381.
Bromo-quinolin. VIII. Collischonn, Friedrich, 255; Rhodius, Richard, 351.
Bromo-safrol-dibromid and sodium ethoxid. VIII. Hoering, 295.
Bromo-succinic acid. VIII. Müller, Wolf, 336.
Bromo-toluene-chlorid. VIII. Wahlforss, 385.
Bronzes, Prehistoric. VIII. Kröhnke, 313.
Building materials. V. Hanausek, 99.
Butane, Liquid. VIII. Degner, 258.
Butter. V. Béghin, 50; Larbalétrier, 122; Rijn, 160. VIII. Bormann, 245; Cramer, 255; Laer, 315; Velsen, 383.
Butyl-benzene, Tertiary. VIII. Carstens, 252.
Butyric acid and iso-butyric acid. VIII. Hutzler, 298.
Butyric acid, Hydrazids of. VIII. Zinsser, 395.
Butyric acid, Sulfonated. VIII. Uhde, 381.

C

Cacao. VIII. Dekker, 258.
  butter. VIII. Graf, Paul, 281.
Cacodylic acid. VIII. Péry, 344.
Cadmium. V. Jensch, 112. VIII. Iggena, 298; Redlich, 350.
  Arseniates of. VIII. Böhm, 244.
  Cyanids of. VIII. Loebe, 322.
  Molybdates of. VIII. Manassewitsch, 326.
  Phosphates and arseniates of. VIII. Itzkowitsch, 300.
  salts and alkali-phosphates. VIII. Karmel, 305.
  salts and phosphoric acid. VIII Karmel, 305.
Caesium phosphates. VIII. Berg, Eduard, 240.
Calcium bicarbonate. VIII. Reuter, 351.
Calcium carbid. I. Ludwig, 4. V. Breton, 60; Dommer, 76; Frölich, 88; Lefèvre, 124; Liebetanz, 127; Methoden, 136; Thompson, G. F., 182.
  and hydroxylamin. VIII. Küspert, 313.
Calcium carbonate. VIII. Meigen, 328.

Calcium carbonate and organic and inorganic acids in alcoholic solutions. VIII. Carette, 252.
Calcium phosphates. V. Barillé, 47; Gastu, 90. VIII Barillé, 235.
  Solubility of. VIII. Rindell, 353.
Calcium sulfate. VIII. Armstrong, 233.
Calico printing. III. Forrer, 15. V. Lauber, 123; Löwenthal, 128; Massot, 133; Prudhomme, 156; Sansone, 166.
Calorimetry. V. Atwater and Rosa, 45.
Camphene. VIII. Majewski, 325.
Camphenil-aldehyde. VIII. Jagelki, 301.
Camphor. VIII. Blanc, 243; Jahn, Stephan, 301.
  Derivatives of. V. Blanc, 55. VIII. Demange, 258.
  derivatives, Oxidation products of. VIII. Blaise, 243.
Camphor group. VIII. Macintyre, 325.
  Pyrrol bases of. VIII. Heynsius, 293.
  Pyrrol compounds of. VIII. Treff, 381.
Camphor series, Oxidation of compounds in the. VIII Majewski, 325.
Camphor-quinone. VIII. Samuel, 358.
Camphoric acid. VIII. Blanc, 243; Majewski, 325.
  Derivatives of. VIII. Van der Meulen, 383.
Camphorone. VIII. Müller, Friedrich, 334; Schoeller, 363.
Camphoronic acid, Amids of. VIII. Hjelt, 294.
Camphoryl-hydroxylamin. VIII. Lossen, 323.
Camphylamin VIII. Bruns, 250.
Capillarity. III. Lloyd, 18. VIII. Berent, 240.
Capri blue. VIII Klimmer, 308.
Capro-lactone, Derivatives of. VIII. Dubois, 262.
Carbamid, Chromium compounds of. VIII. Kalkmann, 304.
Carbazid series. VIII. Walter, Aug, 386.
Carbazol, Derivatives of. VIII. Stein, Victor, 373.
Carbazol series. VIII. Kohan, 310.
Carbids, Metallic. I. Mathews, 4.
Carbimids, Aromatic. VIII. Vittenet, 383.
Carb-indogenids. VIII. Laczkowski, 315.
Carbocyclic compounds. VIII. Dieckmann, 259.
Carbo-diimids. VIII. Eyme, 266.
Carbo-diphenyl-imid and hydroxylamin. VIII. Laske, 317.
bo-ditolyl-imid and hydroxylamin. VIII. Laske, 317.
Carbohydrates. VIII. Vaudin, 383.
  and alkali-persulfates. VIII. Lindt, Louis, 321.
  and bromin. VIII. Fuchs, Willy, 274.
  in plants, Conversion of. VIII. Schüller, 365.
Carbon. V. Donath and Pollak, 76.
  and hydrogen. VIII. Jerdan, 302.
  atoms. V. Muir, 140.
  compounds. II. Richter, 10. V. Adie, 38.
Carbon dioxid. V. Schleicher, 168.
  and hydrogen. VIII Verschaffelt, 383.
Carbon in incandescent state and chlorin and steam. VIII. Mudford, 334.
Carbon in iron. VIII. Harbeck, 287.
Carbon in organic compounds, Determination of. VIII. Moppert, 333.
Carbon monoxid, Elimination of. VIII. Goldstein, 279.
  in gases from the earth. VIII. Grimm, 282.
  Solubility of. VIII. Skirrow, 370.
Carbon, sulfur, phosphorus, Cathodic separation of. VIII. Goecke, 278.
Carbonic acid, Nitramins of. VIII. Graeter, 281.
Carbonyl VIII. Reinicke, 351.
Carbo-styril, Derivatives of. VIII. Feer, 267.
Carboxylic acids, Polybasic unsaturated. VIII. Meisenheimer, 329.

Carotin. VIII. Ehring, 264.
Carvone. VIII. Lipczynski, 322; Löhr, 322; Ohligmacher, 341; Stähler, 372.
  group. VIII. Timmermann, 380.
  Oxidation products of. VIII. Scharpenack, 359.
  series. VIII. Kraith, 312.
Carvone-pinacone. VIII. Koepp, 310.
Carvoxims, Solubility of. VIII. Cooper, 255.
Cascarilla oil. VIII. Fendler, 268.
Castor oil plant. VIII. Rochat, 353.
Catalysis in nonhomogenous systems. VIII. Drucker, 262.
Cells, Chemical organization of. VIII. Hofmeister, 296.
Cellulose. V. Bevan, 52; Cross and Bevan, 73; VIII, Bumcke, 251.
Cement. (*See also* Stones, Artificial.) V. Agglomérés, Les, 38; Boero, 56; Dibdin, 75; Höfer, 106; Leduc, E., 124; Meade, 134; Stöffler, 178; Tetmajer, 181; Zulkowski, 199.
Cereals. VIII. Manget, 326.
Cerite. VIII. Roelig, 354.
  Oxids from, and aluminium. VIII. Schiffer, 361.
  Rare earths from. VIII. Stützel, 377.
Cerium. VIII. Holm, 296; Jolin, 303; Kölle, Gotthold, 309.
  compounds and alkali-ortho-phosphates. VIII. Gittelson, 278.
  Double nitrates of. VIII. Jacoby, Richard, 300.
  salts in alkaline solutions. VIII. Job, 303.
Cetraric acid. VIII. Simon, Oscar, 370.
Cetyl-alcohols, Derivatives of. VIII. Dreden, 261.
Cetyl-phenyl-hydrazin. VIII. Besecke, 241.
Chalkone, Derivatives of. VIII. Rózycki, 356; Thoma, 379.
Chains, Oxidation and reduction. VIII. Linde, 321.
Cheese. V. Sartori, 167; Wilde, 194, VIII. Steinegger, 373.
Chemical compounds in non aqueous solutions. VIII. Eidmann, 264.
Chemical equilibrium. VIII. Boudouard, 246; Laurel, 317.
Chemical equivalence. VIII. Herz, 292; Ogg, 341.
Chemical instruction. II. Schroeder, 10. V. Erlenmeyer, 82; Fischer, K. T., 84; Schmidt, Julius, 168; Science chemistry papers, 170; Wilbrand, 194.
Chemical reactions, Steric disturbance of. VIII. Benker, 239.
Chemicals, Prices of. V. Grauer, 96.
Chemistry, History of. (*See also* Section III.) V. Erp, 82; Mondeville, 139; Rey, 158; Tjaden Modderman, 183. VIII. Moberg, 332.
Chemists. II. Carnoy, 6.
Chitin. VIII. Sundrik, 377.
Chlorates. V. Lunge, 130.
Chlorin. III. Scheele, 21. V. Billon, 54; Lunge, 130. VIII. Hauser, 288; Wegeli, 387.
  Determination of, in organic halogen compounds by persulfates. VIII. Brandt, Gottlieb, 247.
  Determination of, in sodium chlorid by persulfates. VIII. Brandt, Gottlieb, 247.
  Spectroscopic determination of. VIII. Friedländer, Siegfried, 273.
Chloro-acetic acid. VIII. Coebergh, 254.
Chloro-acetone and semi-carbazid. VIII. Paradies, 343.
Chloro-acetone and thio-semi-carbazid. VIII. Paradies, 343.
Chloro-acetophenone-oxim. VIII. Korten, 311.
Chloro-acetyl-carbamids and alkyl-sulfinates. VIII. Frerichs, 272.
Chloro-acetyl-carbamids and potassium-sulfo-hydrates. VIII. Frerichs, 272.
Chloro-acetyl-chlorid and silver-cyanid. VIII. Erck, 265.
Chloro-acetyl-urethane and alkyl-sulfinates. VIII. Frerichs, 272.

Chloro-acetyl-urethane and potassium-sulfo-hydrates. VIII. Frerichs, 272.
Chloro-amido-diphenyl-amin, Azonium compounds of. VIII. Hiby, 293.
Chloro-anilic acid and hydrazins. VIII. Descomps, 259.
Chloro-arsins and arsins of secondary amins. VIII. Kaehne, 304.
Chloro-benzaldehydes. VIII. Wildt, 391.
Chloro-butanone and amins. VIII. Roeder, Georg, 354.
Chloro-butyro-nitril. VIII. Weigert, 387.
Chloro-citramalic acid. VIII. Deecke, 258.
Chloro-cumarone. VIII. Grälert, 281.
Chloro derivatives of aliphatic acids from amido-acids. VIII. Jochem, 303.
Chloro-diazonium bromids. VIII. Smythe, John S., 371.
Chloro-dinitro-benzoic acid and ammonia. VIII. Fresenius, Ferd., 272.
Chloro-dinitro-benzoic acid and phenyl-hydrazin. VIII. Fresenius, Ferd., 272.
Chloro-di-para-tolacyl. VIII. Puls, 348.
Chloroform poisoning. VIII. Krauss, 312.
Chloro-galactonic acid. VIII. Franz, Arthur, 271.
Chloro-hydrate. VIII. Bergstedt, 240.
Chloro-hydrin and pyridin. VIII. Hartmann, Hilderich, 288.
and tri-methyl-amin. VIII. Hartmann, Hilderich, 288.
Chloro-iodo-mesitylene. VIII. Roggatz, 354.
Chloro-ketones, Aromatic. VIII. Scheven, 360.
Chloro-malic acid. VIII. Niehrenheim, 339; Schoerk, 364.
Chloro-methyl-ortho-phenylene-diamin, Azonium compounds from. VIII. Müller, H., 335.
Chloro-naphtalene-sulfonic acids. VIII. Arnell, 233.
Chloro-naphto-quinone-aceto-acetic ester, Fluorescent compounds of. VIII. Bertheim, 241.
Chloro-nitro-benzene. VIII. Wipplinger, 392.
Chloro-nitro-benzoic acid and phenyl-hydrazin. VIII. Peters, 344.
Chloro-nitro-toluenes. VIII. Friedberger, 273.
Chloro-phenetol. VIII. Heyl, Eugen, 292.
Chloro-phenyl-sulfaminic acids. Isomeric. VIII. Cassel, 252.
oro-phosphins of aromatic tertiary amins. VIII. Thelen, 379.
of the aliphatic series. VIII. Guichard, 284.
Chlorophyll. VIII. Nagamatsz, 336.
Chloro-quinolin. VIII. Rhodius, Richard, 351.
Chloro-quinone and ortho-amido-benzoic acid. VIII. Lasserre, 317.
Chloro-toluene. VIII. Heyl, Eugen, 292.
Cholesterin. VIII. Humnick, 298; Oordt, 341; Ritter, 353; Winter, Curt, 392.
Cholin in edible mushrooms. VIII. Görte, 278.
in plants containing caffein and theobromin. VIII. Görte, 278.
Choral-hydrate. VIII. Mauch, 327.
Chromates, Metallic, and aluminium. VIII. Martin, 327.
Chromatophores, Non-chlorophyllaceous. VIII. Josopait, 303.
Chromium. I. Palmaer, 4. V. Le Blanc, 124.
in acid solutions, Electro-chemical behavior of. VIII. Brauer, 247.
Chromium-bromids, Hydrates of. VIII. Gubser, 283.
Chromium-carbonates. VIII. Baugé, 237.
Chromium-chlorids. VIII. Best, H., 241.
Hydrates of. VIII. Gubser, 283.
Chromium-hydroxid. VIII. Fischer, Waldemar, 269.
Chromium-oxalates. VIII. Platsch, 346.

Chromium-sulfate and metallic sulfates. VIII. Laurent, 317.
Chromone derivatives, Synthesis of. VIII. Bloch, 243.
Chromotrop acid. VIII. Hantower, 287.
Chrysene. VIII. Gnehm, 278; Hoenigsberger, 295.
Chrysolin. VIII. Plack, 346.
Cider. V. Rocques, 161.
Cinchona-alkaloids. VIII. Hoeppner, 295.
Cinchona bark. VIII. Schütt, 365.
Cinchonidin and bromin. VIII. Galimard, 275.
Cinchonin. V. Scavia, 167. VIII. Andrée, 232.
Cinchoninic acid. VIII. Lossow, 323.
  Substituted. VIII. Leuscher, 320.
Cineolic acid. VIII. Ronus, 355.
Cinnamic aldehyde and succinic acid. VIII. Batt, 237.
Cinnamyl-acetic ester. VIII. Weiss, Rudolf, 388.
Cinnamyl-aceto-acetic ester. VIII. Grevel, 282.
Cinnamylidene-malonic acid, Bromids of. VIII. Dörr, 261.
  Derivatives of. VIII. Wulff, Ernst, 394.
Citral. VIII. Schröder, 364.
  and malonic ester. VIII. Grünhagen, 283.
Citramalic acid. VIII. Akselrod, 231.
Citronellal. VIII. Schauwecker, 360; Schröder, Aug., 364.
  and malonic ester. VIII. Grünhagen, 283.
Citrylidene-bis-aceto-acetic ester. VIII. Stang, 373.
Clay. V. Ashby, 43; Bischof, 54; Crossley, 73; Fairie, 82.
Coal. V. Agglomérés, Les, 38; Roberts, 161.
Coal tar. V. Jaubert, 111; Lunge, 130; Schultz, G., 170; Thenius, 181. VIII. Huth, 298.
Coal tar colors. VIII. Friedländer, P., 273.
Cobalt. I. Palmaer, 4. VIII. Huldschinsky, 292; Uellenberg, 381.
Cobalt, Ammoniacal arseniates of. VIII. Ducru, 262.
Cobalt salts. VIII. Kallir, 304.
  in alkaline solutions. VIII. Job, 303.
Cobaltammonia. VIII. Salzer, 358.
Cobaltammonium compounds. VIII. Berl, 241.
Cabaltammonium salts. VIII. Rücker, Karl, 356.
Cobalt-chlorid. VIII. Hardt, Wilhelm, 288.
Cobalticyanids, Alkaline, and mercury salts. VIII. Soenderop, 371.
Cobalt-oxalates. V. Sörensen, 175.
Cobalt-oxids. VIII. Hüttner, 298.
Cobalt-tetramin compounds. VIII. Jenny, 302.
Cobalt-tetramins. VIII. Reinsch, 351.
Cocain, Partial synthesis of. VIII. Bode, 244.
Cochineal. VIII. Liebermann, 321.
Cochinilic acid, Esters and indone derivatives from. VIII. Landau, 316.
Codein. VIII. Sumuleanu, 377.
Coffee. V. Lecomte, 124. VIII. Erdmann, 266
Coke. V. Simmersbach, 173.
Cold, Production of. V. Behrend, 50; Lorenz, 129; Tayler, 180. VI. Eis- und Kälte-Industrie, 224.
Colloidal metals, Catalytic properties of. VIII. Bredig, 248.
Colloidal salts in the dyeing process. VIII. Preuner, 348.
Colloids, Inorganic. VIII. Lottermoser, 323.
Color bases. VIII. Osswald, 342.
Coloring matters VIII. Seyewetz, 368.
Colostrum. VIII Jablonsky, 300; Tiemann, 380.
Combustibles. V. Schwartz, 170.
Congresses, Chemical. VII. Bericht über den III. internationalen Congress, 220; Bericht über die X. Hauptversammlung, 220; Bericht über die III.-IV. . . . Hauptversammlung, 220.
Coniïn. VIII. Gilbert, 277.

onstants, otti-Claudius'. VIII. Zietkowski, 395.
okery. (*See also* Foods and nutrition.) V. Hogan, 107; Richards and Elliott, 159.
idin. VIII. Levy, Louis, 320.
r. V. Eissler, 80. VIII. Egli, 263; Stahl, 372.
per-arsenid. VIII. Rietzsch, 352.
er, Electrolytic separation of. VIII. Siegrist, 369.
, Ferro-cyanids and cobalticyanids of. VIII. Ossedat, 342.
-phosphid.
-sulfate, So
Maldès, 325.
n cobs and elder pith, Constituents of. VIII. Browne, 249.
Corydalis alkaloids. VIII. Wagner, Hans, 385.
Cosmetics. (*See also* Essential oils; Perfumes.) III. Saliceto, 21. V. Mondeville, 139.
otarnin. VIII. Bamberg, Paul, 235; Voigt, 384.
Cotton. V. Tompkins, 183.
Cotton oil. V. Tompkins, 183.
Creatin. V. Mallet, 131.
Creatinin. V. Mallet, 131.
Creosote, Pyrogenic decomposition of. VIII. Müller, Eberhard, 334.
Crotonic acid. VIII. Helkenberg, 290.
  Solid, and hydrogen bromid. VIII. Darbishire, 257.
Crotonic aldehyde and hydroxylamin. VIII. Haarmann, 285.
Crotonic aldehydes, Derivatives of. VIII. Frank, Franz, 271.
Cryolite, Fluorene in. VIII. Weber, Hermann, 386.
Cryoscopy. V. Calzolari, 64; Mann, 132; Raoult, 157. VIII. Bartsch, Walter, 236; Dohrn, 261; Gierig, 277; Mann, Gustav, 326; Smith, Harry, 370; Sommerfeldt, 371.
Crystals, Mixed. VIII. Sommerfeldt, 371.
Cumalic acids, Halogen substituted. VIII. Mills, 331.
Cumaranones. VIII. Atenstädt, 233; Bartsch, Fritz, 236.
Cumarin. VIII. Furrer, 275; Krafft, 311.
  Basic. VIII. Schaal, 359.
Cumarone. VIII. Boes, 245; Finckh, 268; Kahlert, 304; Nathansohn, 337.
  Derivatives of. VIII. Calov, 252; Richter, Otto, 352.
  Synthesis of homologues of. VIII. Schmidt, Hugo, 362.
Cumene, Arsenic derivatives of. VIII. Oberg, 340.
  Derivatives of. VIII. Ropp, Paul, 355.
Cuminol and ethyl-amin. VIII. Schwabbauer, 367.
  and methyl-amin. VIII. Schwabbauer, 367.
Cumylidene-anilin and benzaldehyde in the presence of potassium-cyanid. VIII. Gerngross, 277.
Curangin. VIII. Borsma, 246.
Cyamelid. VIII. Hofmann, Friedrich, 296.
Cyanacetamid, Condensation products of. VIII. Corti, 255.
Cyanacetic ester, Condensation products of. VIII. Corti, 255.
Cyanacetone. VIII. Fussenegger, 275.
Cyanide process. (*See also* Gold.) V. Bosqui, 58; Eissler, 80; Gaze, 91; Park, 147; Wilson, 195.
Cyano-acetic esters, Oxy-methylene derivatives of. VIII. Grégoire, 281.
Cyano-azo-methin. VIII. Goldmann, Max, 279.
Cyano-benzyl-anilin. VIII. Goldmann, Max, 279.
Cyano-benzyl-chlorid. VIII. Brackel, 246.
Cyano-benzyl-malonic ester and ammonia. VIII. Lüttgen, 324.
Cyanoform. VIII. Osswald, 342.
Cyanogen. V. Goldberg, 94. VIII. Sander, W., 358.
  and hydroxylamin. VIII. Laske, 317.

Cyanogen compounds. III. Loebe, 18. VIII. Maisel, 325.
Cyanuric acid. VIII. Hofmann, Friedrich, 296.
  compounds of. VIII. Putensen, 348.
Cyanuric compounds. VIII. Diels, 260.
Cyclic bases, Cholin- and neurin-like compounds from. VIII. Henle, Karl, 290.
Cyclic compounds containing sulfur. VIII. Hennings, 290.
Cyclo-heptane. VIII. Jacobi, Andreas, 300.
Cyclo hexanone. VIII. Knoch, 308.
Cyclo-hexanone-carboxylic esters. VIII. Coblitz, 254.
Cyclo-methyl-hexanone, Condensation products of. VIII. Dorrance, 261.
Cyclo-pentadiene, Condensation of, with diphenyl-methane and dihydronaphtalene. VIII. Albrecht, Walther, 231.
Cyclo-pentadiene, Derivatives of. VIII. Noeldechen, 339.
Cyclo-pentadiene-quinones. VIII. Albrecht, Walther, 231.
Cyclo-pentane derivatives. VIII. Abell, 230; Meiser, 329.
Cyclo-pentenones, Chlorinated. VIII. Rohde, 354
Cystin. VIII. Friedmann, Adolf, 273.

D

Daguerre's process. VIII. Scholl, H., 364.
Dairies and dairying. (*See also* Milk.) V. Anweisung, 42; Fleischmann, 85; Kirchner, 115; Richmond, 159; Schäfer, 167; Stohmann, 178; Tiemann, 183; Weigmann, 192. VII. Bericht über die Thätigkeit, 221.
Daniel's chains. VIII. Zöhls, 395.
Deca-methylene-diamin and aldehyde, Condensation of. VIII. Wagner, 385.
Decylene. VIII. Narraway, 337.
Dehydro-mucic acid. VIII. Yoder, 394.
Denitrification. V. Lemmermann, 125.
Dental chemistry. V. Hall, 98.
Desoxy-benzoin. VIII. Bilite, 242; Wieland, 391.
  and ethylic succinate. VIII. Rüsswurm, 357.
  Thio derivatives of. VIII. Neuenhaus, 338.
Desoxy-cholic acid. VIII. Vahlen, 382.
Dextrose. VIII. Willeke, 391.
Diabasic acids, Hydroxylamin derivatives of. VIII. Ehlert, 263.
Diabasic oxy-acids and caustic soda. VIII. Dreyfus, 262.
Diacetal-amin. VIII. Henkel, 290.
  Derivatives of. VIII. Klünder, 308.
Diaceto-succinic esters, Isomeric. VIII. Smyth, Morland, 370.
Diacetone-amin-oxim and diacetone-diamin and methyl-pentadiene. VIII. Adamianz, 230.
Diacetone-amin, Carbamid and guanidin derivatives of. VIII. Schall, Max, 359.
Diacetone-hydroxylamin. VIII. Jablonski, 300.
Diacyl-methane, Formation of acetals from. VIII. Lehmann, Willy, 318.
Dialpharyl-hydrazins, Secondary. VIII. Weiss, Bruno, 388.
Dialuric acid. VIII. Koech, 309.
Diamido-benzoic acid of Griess. VIII. Schilling, Bruno, 361.
Diamido-diphenyl-methane, Ketone bromids and ketone chlorids from. VIII. Krügener, 313.
Diamido-lutidin. VIII. Amos, 232.
Diamido-phenyloso-triazol. VIII. Schleussner, 362.
Diamino-dioxy-pyrimidin. VIII. Schottländer, 364.
Diamino-hexane. VIII. Günther, Heinrich, 284.
Diamins, Aliphatic. VIII. Keil, 305.
  and aldehydes. VIII. Jaross, 302.
  and carbonyl-chlorid. VIII. Jaross, 302.
Diamins, Mandelo-nitril and lacto-nitril, Condensation of. VIII. Thiele, 379.

- Diamyl-oxaminic acids. VIII. Atkinson, 234.
- Dianisidin. VIII. Starke, 373.
- Diastase. V. Coupin, 72; Pozzi-Escot, 154. VIII. Doering, 260.
- Diazo compounds. VIII. Hantzsch, 287; Stein, Victor, 373.
  - Aliphatic. VIII. Curtius, 256.
  - and acyl-ketonic esters. VIII. Hailer, 286.
  - and alcohols. VIII. Gruskiewicz, 283.
  - and calcium-hypochlorate. VIII. Kuchenbecker, 313.
  - and para-toluene-sulfinic acid. VIII. Jenichen, 302.
  - Ortho-methylated, and alkalies. VIII. Goldberger, 279.
- Diazo dyes. VIII. Wolfs, 393.
- Diazo salts. VIII. Bamberg, Paul, 235.
- Diazo-acetic-ester and phenyl acetylene. VIII. Lehmann, Louis, 318.
- Diazo-acetic ether. VIII. Silberrad, 369.
- Diazo-amido compounds. VIII. Tewes, 378.
- Diazo-benzene-sulfonic acid and ethyl-para-toluidin-hydrochlorid. VIII. Pip, 346.
- Diazo-benzidin compounds. VIII. Dilthey, 260.
- Diazo-carboxylic acid, Derivatives of. VIII. Schultze, Otto, 366.
- Diazo-cyanids, Stereoisomeric. VIII. Schultze, Otto, 366.
- Diazo-guanidin. VIII. Smythe, John S., 371; Vogt, 382.
- Diazo-hydrates, Isomeric. VIII. Engler, 265.
- Diazo-imido-benzene, Derivatives of. VIII. Majewski, Karl, 325.
- Diazo-imids. VIII. Strauss, Carl, 376.
- Diazo-methane. VIII. Nold, 339; Seel, 367.
  - Addition of, to compounds with an ethylene bond. VIII. Burkard, 251.
- Diazonium and ammoniacal cuprous hydroxid solution. VIII. Meyer, Felix, 330.
- Diazonium salts and ammoniacal cuprous hydroxid solution VIII. Trampedach, 380.
- Diazonium salts and cuprous compounds. VIII. Blagden, 243.
- Diazonium salts and methyl- and ethyl-alcohols. VIII. Jochem, 303.
- Diazonium-benzene-sulfonic acids and stereoisomeric diazotates. VIII. Gerilowski, 277.
- Diazonium-perhaloids. VIII. Günther, Heinrich, 284.
- zonium-thio-sulfonates. VIII. Ewers, 266.
- Diazo-perbromids. VIII. Strauss, Carl, 376.
- Diazotates, Isomeric. VIII. Engler, 265.
- Dibenz-hydroxamic series. VIII. Skiba, 370.
- Dibenzal-ketone-penta-methylene. VIII. Mentzel, 329.
- Dibenzal-propionic acid, Derivatives of. VIII. Mayr, R., 328.
- Dibenzal-succinic acids. Stereoisomeric. VIII. Naoúm, 336.
- Dibenzoyl-glutaric ester. VIII. Propach, 348.
- Dibenzoyl-hydrazin, Action of iodin and halogenous compounds on metal derivatives of. VIII. Benrath, 239.
- Dibenzoyl-malonic ester and phenylhydrazin. VIII. Neuhäusser, 338.
- Dibenzoyl-methane, Isomeric. VIII. Crowther, 256.
- Dibenzoyl-methane, Phosphinic acids of. VIII. Flemming, Arthur, 269.
- Dibenzoyl-phenyl-glutaric ester. VIII. Hinniger, 293.
- Dibenzyl-hydrazin, Symmetrical. VIII. Quedenfeldt, 349.
- Dibenzyl-ketone. VIII. Bilite, 242.
  - and ethylic succinate. VIII. Russwurm, 357.
- Dibiphenylene-ethane. VIII. Lonnes, 323.

Dibromids and alcoholic potash. VIII Narraway, 337.

Dibromids, Aromatic, and sodium. VIII. Hinrichsen, 294.

Dibromo-anethol-dibromid and sodium-ethoxid. VIII. Hoering, 295.

Dibromo - anhydro - para-oxy - pseudo - cumyl-alcohol. VIII. Sheldon, 368.

Hydro-bromid of. VIII. Welde, 389.

Dibromo-cinchonidin and bromin. VIII. Galimard, 275.

Dibromo-hexanes, Two stereoisomeric. VIII. Mohr, Otto, 332

Dibromo-indone, Derivatives of. VIII. Lanser, 316

Dibromo-mesitol-bromid. VIII. Traun, 381.

Dibromo-pentane and primary and secondary amins. VIII. Friehmelt, 273.

Dibromo - pyro - tartaric acids and aromatic bases. VIII. Enzenauer, 265.

Dibromo-quinolin. VIII. Hillkowitz, 293.

Dibromo-substituted acids and aromatic amins. VIII. Preiswerk, 347.

Dibromo-succinic acid. VIII. Raabe, 349.

Decomposition of. VIII. Riebensahm, 352.

Dibromo-thymo-quinone. VIII. Hoffmann, Julius, 295.

Dibromo-tri-acetone-amin and ammonia. VIII. Rossbach, 356.

Dicarbo - tri - thio - bis - desoxy - benzoin. VIII. Neuenhaus, 338.

Dicarboxyl-glutaconic ester, Bimolecular. VIII. Weiss, Arno, 388.

Dicarboxylic acid derivatives of primary hydrazins. VIII. Heinrichs, 290.

Dichloro-indone. VIII. Wiedermann, 390.

Dichloro-ketones. VIII. Johannssen, 303

Dichloro-naphto-quinone and derivatives of malonic ester. VIII. Michel, Fritz, 331.

Dichloro-para-phenylene-diamin. VIII. Stierlin, 375.

Dichloro-phthalic acid. VIII. Gourevitz, 280.

Condensation products of. VIII. Séverin, 368.

Dichloro-propionic acid. VIII. Fromme, 274.

Dichloro - quinone and ortho - amido - benzoic acid. VIII. Lasserre, 317.

Dichloro-telluro-ketones. VIII. Rohrbaech, 355.

Dichloro-triketone-hydro-quinolin-hydrates. VIII. Winzheimer, 392.

Dictionaries. (*See* Section II.)

Dicyano - benzoyl - acetic ester. VIII. Heinemann, 289.

Dicyano-hydro-quinones, Derivatives of. VIII. Günther, Fritz, 284.

Diduro-quinone. VIII Hankel, 287.

Diethyl-aceto-acetic-ester. VIII. Berge, 240.

Diethyl-anilin and cyanogen-bromid. VIII. Noerr, 339.

Diethyl-hydro-tolu-quinone, Oxidation of. VIII. Bernard, 241.

Diethyl-phenol, Derivatives of. VIII. Broichsitter, 249.

Diffusion. V. Trovert, 185.

Digitalis. VIII. Windaus, 392.

Digito-flavone. VIII. Fleischer, 269.

Digitogenin. VIII. Merk, 329.

Dihydro-carvyl-diamin. VIII. Mäyrhofer, 328.

Dihydro - lutidin - dicarboxylic ester. VIII. Fuchs, Julius, 274.

Dihydro-quinazolin. VIII. Krecke, 312.

Dihydro-tetrazin. VIII. Bauer, Wilhelm, 237.

Dihydroxylic phenols, Action of chloro-acetal on the mono-alkyl-ethers of. VIII. Teudeloff, 378.

Di-iodo-dinaphthyl. VIII. Schlösser, 362.

Di-iodo-nitro-benzene, Iodoso, iodo, and iodonium compounds of. VIII. Ernst, Waldemar, 266.

Di-iso - amyl - benzene, Derivatives of. VIII. Steinorth, 374.

Di-iso-butyl-amin and chloro-acetal. VIII. Schneider, Georg, 363.

Diketone series. VIII. Stern, Hermann, 374.

Diketones. VIII. Dencks, 258; Elze, 264; Fackelmann, 267; Stern, 374.

  Aromatic. VIII. Wesenberg, 390.

  Mercaptoles and sulfones of. VIII. Bartelt, 236.

Diketonic acids. VIII. Kedesdy, 305.

Diketonic esters. VIII. Kedesdy, 305.

Dilaevulinic acid. VIII. Hofacker, 295.

Dilatometer. VIII. Möller, K., 332

Dimeta-xylyl-arsin. VIII. Rotter, 356.

Dimethoxy-diphenyl. VIII. Hinterskirch, 294.

Dimethoxy-phenanthrene. VIII. Buckow, 250.

Dimethyl-acetophenone and aldehydes, VIII. Moll, 332.

Dimethyl-anilin and cyanogen-bromid. VIII. Noerr, 339.

Dimethyl-anilin-oxid. VIII. Leyden, 320.

Dimethyl-anilin-phthaloylic acid. VIII. Seyler, 368.

Dimethyl-cumarones, Synthesis of two isomeric. VIII. Hermes, 291.

Dimethyl-ethylene. VIII. Herrmann, 291.

Dimethyl-ethyl-pyrazin. VIII. Detert, 259.

Dimethyl-glyoxalidin. VIII Baumann, Georg, 238.

Dimethyl-hydro-resorcin. VIII. Volkholz, 384.

Dimethyl-hydro-tolu-quinone, Oxidation of. VIII. Bernard, 241.

Dimethyl-meta-amido-benzoic acid and formaldehyde, Condensation of. VIII. Zundel, 396.

Dimethyl-meta-toluidin-azo-benzene. VIII. Samelson, Siegfried, 358.

Dimethyl-naphto-safranin. VIII. Graf, Gottfried, 281.

Dimethyl-nitro-quinolin, Derivatives of. VIII. Burr, 251.

Dimethyl-octanolic acid, Lactone of. VIII. Seuffert, 368.

Dimethyl-ortho-toluidin, Derivatives of. VIII. Kann, 305.

Dimethyl-oxazol. VIII. Oesterreich, Max, 340.

  and acetaldehyde. VIII. Oesterreich, Max, 340

Dimethyl-para-toluidin-oxid. VIII. Leyden, 320.

Dimethyl-pyrazin, Synthesis of. VIII. Jorre, 303.

Dimethyl-pyrimidin. VIII. Angerstain, 232.

Dimethyl-pyrrolin. VIII Hielscher, 293.

Dimethyl-succinic acids, Unsymmetrical, Ester acids and anilic acids of. VIII. Güttes, 284.

Dimethyl-uracils. VIII Dietrich, 260.

Dimethylene-quinone. VIII. Hütz, 298.

Dinitro-benzoic ester and hydrazin-hydrate. VIII. Riedel, Adolf, 352.

Dinitro-chloro-benzene and pyridin. VIII. Gail, 275; Heuser, Gerhard, 292.

Dinitro-chloro-benzoic acid. VIII. Heuser, Gerhard, 292.

Dinitro-cresol. VIII. Kunze, 314.

Dinitro-diethylene-diamin-cobalt salts. VIII. Humphrey, 298.

Dinitro-meta-dichloro-benzene and amins, phenols and alcohols. VIII. Föhrenbach, 270.

Dinitro-meta-xylene-sulfonic acid. VIII. Gronow, 282.

Dinitro-methyl-toluidin. VIII. Mayer, R., 328.

Dinitro-naphthalene. VIII. Oser, 342.

  Isomerisation of, into nitro-nitroso-naphtol. VIII. Eckstein, 263.

  Sulfonation of. VIII. Eckstein, 203.

Dinitro-naphtol. VIII. Matis, 327.

Dinitro-salicylic acid. VIII. Sieben, 369.

Diortho-methyl-para-diquinolyl. VIII. Paack, 343.

Dioxy acids. VIII. Lentz, 319.

Dioxy-amido-anthraquinone-sulfonic acid. VIII. Theis, 379.

Dioxy-benzal-cumaranone. VIII. Kesselkaul, 306.

Dioxy-benzene, Carbonates of the three isomeric. VIII. Lindenberg, 321.
Dioxy-cumarin and aldehydes. VIII. Haller, 287.
Dioxy-dialphyl-acetic lactones. VIII. Simonis, 370.
Dioxy-diphenyl-methane, Ketone-bromids and ketone-chlorids from. VIII. Krügener, 313.
Dioxy-diphenyl-tri-bromo-ethane and bromin. VIII. Meimberg, 328.
Dioxy-diphenyl-tri-bromo-ethane and chlorin. VIII. Meimberg, 328.
Dioxy-diphenyl-tri-chloro-ethane and bromin. VIII. Meimberg, 328.
Dioxy-diphenyl-tri-chloro-ethane and chlorin. VIII. Meimberg, 328.
Dioxy-ditolyl-methane and bromin. VIII. Claus, 254.
Dioxy-flavone. VIII. Blumstein, 244.
  Synthesis of. VIII. Oderfeld, 340; Osius, 342; Salis, 358; Seifart, 368.
Dioxy-lutidin. VIII. Amos, 231.
Dioxy-naphthalene. VIII. Zielke, 395.
  Mono-ethyl-ether of. VIII. Thon, 379.
Dioxy-naphthalene-disulfonic acid. VIII. Hantower, 287.
Dioxy-succinic ester, Carbamid derivatives of. VIII. Geisenheimer, 276.
Dioxy-tolyl-phenyl-methane and bromin. VIII. Claus, 254.
Di-para-oxy-phenyl-dimethyl-methane and bromin. VIII. Grüters, 283.
Dipenta-methenyl, Derivatives of. VIII. Meiser, 329.
Diphenyl and phosphorus-trichlorid. VIII. Buss, 251.
Diphenyl, Derivatives of. VIII. Friedlaender, Hans, 273.
Diphenyl, Phosphorus and sulfur derivatives of the amins of. VIII. Zahn, 394.
Diphenyl-amins. VIII. Wagner, Horst, 385.
Diphenyl-amins. Derivatives of. VIII. Barth, Theodor, 236.
  Sulfonic acids of. VIII. Werdenberg, 389.
Diphenyl-carbazid, Molecular compounds of. VIII. Lapras, 317.
Diphenyl-ethane-amidin, Derivatives of. VIII. Zetlitz, 395.
Diphenyl-ether. VIII. Maehly, 325.
Diphenyl-ethyl-imidazols. VIII. Laudon, 317.
Diphenyl-hexatriene-carboxylic acid, Derivatives of. VIII. Knell, 308.
Diphenyl-hydrazin-methylene. VIII. Quedenfeldt, 349.
Diphenyl-imid-azol. VIII. Weppner, 389.
Diphenyl-iso-dithio-biazolone. VIII. Kamphausen, 304; Spitta, Alb., 372.
Diphenyl-methane, Hydrogenated derivatives of. VIII. Strauss, Otto, 376.
Diphenyl-methane-dicarboxylic acid. VIII. Lach, 315
Diphenyl-methyl-imid-azols. VIII. Witte, 392.
Diphenyl-pentenic acid. VIII. Merckens, 329
Diphenyl-propane series. VIII. Wieland, 391.
Diphenyl-pyrone. VIII. Siegfried, 369.
Diphenyl-tolyl-arsin. VIII. Lauterwald, 317.
Diphenylene. VIII. Meyer, Leo, 331.
Diphenylene-glycolic acid. VIII. Nickell, 338.
Dipiperonylidene-succinic acid. VIII. Vieweg, 383.
Dipropyl-oxaminic acids. VIII. Atkinson, 234.
Dipseudo-cumyl-phenyl-arsin. VIII. Rotter, 356.
Diquinolyl VIII. Loo, 323; Schmook, 363.
Diquinoyl-tetra-oxim. VIII. Geese, 276.
Diquinoyl-tri-oxim. VIII. Blumenthal, 244.

Dirhodano-cobaltiac salts and structural isomerism in inorganic compounds. VIII. Bräunlich, 247.
Discoveries, Chemical V. Ephraim, 81.
Disinfection. V. Hess, 104; Paul, 149; Rideal, 160.
Dissociation. III. Duhem, 14. V. Battelli, 49; Cohen, 70; Duhem, 77.
Distillation of liquors. (*See also* Alcohols; Wine.) III. Dujardin, 14. V. Bücheler, 62; Duplais, 78; Eidherr, 80; Fierz, 83; Hourier, 108; Jacqu [illegible] Maercker, 131; Noel, 144; Ponti, 154; Rocques, 161; Sebastian, 170; Sorel, 175; Valyn, 186; Vigneron, 188. VII. Jahrbuch des Vereins, 225.
Disulfids and amins. VIII. Obermiller, 340.
ulfids, Cyclic. VIII. Wolff, Karl, 393.
isulfones. VIII. Ebers, 263; Fahrenhorst, 267.
  Cyclic. VIII. Wolff, Karl, 393.
  Mixed. VIII. Hazard, 288.
Dithienyl, Derivatives of. VIII. Nahke, 336.
Dithio-biurets. VIII. Philippe, 345.
Dithio-carbonic ester. VIII. Lingenbrink, 321.
Ditolyl-phthalid. VIII. Holtz, 297.
Dolomite. VIII. Schiffer, 361.
Domestic chemistry. V. Baringer, 47; Lassar-Cohn, 122, 123; Mellmann, 135; Regodt, 157; Richards and Elliott, 159; Schreiber, 169; Snijders, 174.
Double salts, Complexions in. VIII. Rieger, 352.
Drying. V. Hausbrand, 101.
Dulcite. VIII. Moulin, 333.
Duro-quinone. VIII. Hankel, 287.
Dyeing and bleaching. I. Garçon, 3. II. Bersch, 6; Garçon, 7; Rawson, 10. III. Produits, 20. V. Art of dyeing, 43; Beech, 49; Bottler, 58; Delmart, 74; Depierre, 75; Faymonville, 83; Fraps, 86; Ganswindt, 89; Garçon, 89; Georgevics, 91; Gnehm, 94; Gros-Renaud, 97; Heermann, 101; Hellot, 102; Herzfeld, J., 104; Hölbling, 106; Hummel, 109; Lebbin, 123; Löwenthal, 128; Miyares, 138; Modern bleaching, 139; Pappenheim, 147; Paterson, 148; Piequet, 152; Prudhomme, 156; Reimann, 157; Sansone, 166; Scherf, 167; Schoop, P., 169; Soxhlet, 175; Tailfer, 180; Thomas, 181; Triapkine, 185. VII. Farbenzeitung, 224; Lauber's Monatshefte, 226; Yearbook, 228; Zeitschrift für Farben- . . . chemie, 229. VIII. Rötheli, 354; Sansone, 358; Theis, 379.
Dyestuffs. II. Schultz, 10. V. Atlas, 44; Berghof, 51; Blum, 56; Bülow, 62; Buss, 63; Dupont, 78; Heumann, 104; Jaubert, 111; Lehne, 125; Nietzki, 143; Rupe, 163; Thomas, 181. VIII. Blum, 244.
Dynamite. (*See also* Explosives.) V. Trawzl, 184.

E

Ecgonin. VIII. Müller, Wilhelm, 335.
Ecgoninic acid. VIII. Bode, 244; Hollander, 296.
Egg-albumen, Products of the alkaline hydrolysis of. VIII. Stüber, 377.
Eight (Carbon) ring, Formation of. VIII. Sondheimer, 371.
Elder berries. VIII. Sack, 357.
Electrochemistry. II. Heyne, 7. III. Borchers, 13. V. Arrhenius, 43; Bauer, 49; Becker, 49; Becquerel, 49; Bermbach, 51; Biscan, 54; Blount, 56; Cossa, 72; Elbs, 80; Gerdes, 91; Haber, 98; Handbuch, 99; Holzt, 108; Jones, H., 113; Kohn, 116; Le Blanc, 124; Löb, 128; Lorenz, 129; Minet, 138; Nernst,

Electrochemistry. [Cont'd.] 142; Norden, 144; Oettel, 145; Peters, F., 151; Prime nozioni, 155; Quivy, 156; Smith, Edgar, 174; Specketer, 175. VII. Electro-chemist, 224; Electrochemical Industry, 224; Elektrochemische Technik, 224; Jahrbuch der Elektrochemie, 225; Transactions, 228. VIII. Kieseritzky, 306.

Electrolysis. V. Faraday, 83; Hollard, 107; Jordis, 114; Kolbe, 117; Löb, 128; Minet, 138; Neumann, 142; Petersen, 151; Riban, 159; Schoop, 169. VIII. Auerbach, G., 234; Laband, 315; Sackur, 357; Siegrist, 369; Winkelblech, 392.

Electrometallurgy. V. Becker, 49; Borchers, 58; Minet, 138.

Electroplating. V. Geiger, 91; Ghersi, 92; Langbein, 121; Philip, 151; Stockmeier, 177; Taucher, 180; Watt, 191; Werth, 193.

Emetics. VIII. Baudran, 237.

Enamel. V. Coffignal, 69.

Encarvone. Löhr, 322; Stähler, 372.

Engineering chemistry. V. Davis, 74; Phillips, 152; Sexton, 172; Stillman, 177.

Erbia. VIII. Höglung, 295.

Ergot. V. Keller, 115.

Erythronic acid. V. Meusser, 136.

Essential oils (*See also* Cosmetics; Perfumes.) V. Atkinson, 44; Charabot and Dupont, 66; Gildemeister, 93; Idris, 110; Labbé, 119; Liotard, 127; Parry, 148. VIII. Adlung, 230; Mann, Karl, 326.

Ester formation. VIII. Michaëlis, 331.

Esterification. VIII. Feith, 267.

Etard's reaction. V. Rohde, 162.

Ethanolamin, Derivatives of. VIII. Rössler, Paul, 354.

Ethenyl-tri-sulfid. VIII. Mangler, 326.

Etherification. V. Williamson, 195.

Ethin-diphthalids. VIII. Bechler, 238.

Ethoxy acids, Electrosyntheses from. VIII. Mend, 329.

Ethoxy-butyric acid and aqueous potash. VIII. Helmrich, 290.

Ethoxy-flavone. VIII. Alperin, 231.

Ethoxy-fumaric ester. VIII. Goldschmidt, Max, 279.

Ethoxy-quinolin (Ana). VIII. Wiske, 392.

Ethoxyl-phosphorus-oxy-chlorid and primary and secondary amins. VIII. Ratzlaff, 350.

Ethyl group. VIII. Schmidt, Aug., 362.

Ethyl-acetate. VIII. Alexander, 231.

Ethyl-benzene, Derivatives of. VIII. Schmiz, 363.

Ethyl-crotonic acid. VIII. Borstelmann, 246.

Ethyl-esters, Aromatic. VIII. Michaëlis, 331.

Ethyl-lepidin derivatives. VIII. Bijvanck, 242.

Ethyl-malonic hydrazid. VIII. Rechnitz, 350.

Ethyl-mesaconic acid, Oxidation of, by potassic permanganate. VIII. Dannenberg, 257.

Ethyl-methyl-ketone. VIII. Levinstein, 320.

Ethyl-nitrolic acid, Isomeric salts of. VIII. Graul, 281.

Ethyl-oxy-butyric acid. VIII. Lurie, 324.

Ethyl-phenol and chloro-acetal. VIII. Schröder, 365.

Ethyl-phenyl-hydrazin and ethylic-chloro-carbonates. VIII. Lütgert, Ad., 324.

Ethyl-phenyl-ketone. VIII. Niedenzu, 339.

Ethyl-phthalazin, Synthesis of. VIII. Paul, Victor, 344.

Ethyl-sulfo-acetic acid, Sulfone compounds from. VIII. Claësson, 253.

Ethylene and benzene vapours. VIII. Harbeck, 287.

Ethylene-diamin. VIII. Herzfeld, 292.
    Alkyl derivatives of. VIII. Schneider, Paul, 363.

Ethylene-diamin and benzyl-chlorid. VIII. Bleier, 243.
  and bivalent salts VIII. Megerle, 328.
  and salts of bivalent metals, Compounds of. VIII. Spruck, 372.
  and tri-methylene-bromid. VIII. Bleier, 243.
lene-diamin-amin compounds. VIII. Grün, Ad., 283.
ylene-imin series. VIII. Frobenius, Otto, 274.
thylene-phenyl-hydrazin VIII. Hirshmann, 294
Ethylic-sodium-aceto-acetate and ethylene bromid. VIII. Freer, 272.
Ethylic-sodium-diketo-hydrindene-carboxylate and halogens. VIII. Flatow, 269.
Ethylidene-anilin, Derivatives of. VIII. Hamburger, 287.
thylidene-glutaric acid. VIII. Eggert, 263; Mühlhauser, 334.
Eugenol, Bromin derivatives of. VIII. Hahn, Otto, 286.
Euxenite. VIII. Prandtl, 347.
Evaporation, condensing and cooling. V. Hausbrand, 100.
Experimental chemistry. V. Arendt, 42; Blochmann, 55; Emsmann, 81; Faideau, 82; Herding, 103; Hill, A. W., 105; Hillyer, 105; Mackensie, 130; Newell, 143; Newth, 143; Praktischer Chemiker, 155; Smith and Keller, 174; Wyatt, 198. VIII. Keil, 306.
Explosives. (*See also* Dynamite; Gunpowder.) II. Daniel, 7. V. Auzenat, 46; Bernadou, 51; Guttmann, 98; Nimier, 143; Nunoz, 144; Pictet, R., 152; Sanford, 166; Schmerber, 168; Schwartz, 170; Uebersicht, 186; Walke, 190; Wille, 195.
Expositions, Chemistry at. III. Bericht, 12; Borchers, 13; Horsin-Déon, 17; Katalog, 17; Keppeler, 17; Mellmann, 18; Witt, 22. V. Wiley, 194.

F

Fenchene. V. Neumann, 143.
  Derivatives of. VIII. Neumann, 338; Phillips, 345.
Fencho-carboxylic acid. VIII. Phillips, 345; Westphalen, 390.
Fenchone. VIII. Meyer, Frederick, 330.
Fenchone-pinacone. VIII. Koepp, 310.
Fermentation. (*See also* Yeast.) III. Roussy, 21. V. Ahrens, 39; Coupin, 72; Green, 96; Jacquemin, 111; Jörgensen, 113; Oppenheimer, 146; Pozzi-Escot, 154. VIII. Bredig, 248.
Ferric compounds. VIII. Desch, 259.
Ferric oxid, Arsenates of. VIII. Metzke, 330.
Ferric salts. VIII. Müller, Richard, 335.
Ferricyanids of the alkaline earths. VIII. Müller, Paul, 335.
Ferrous salts and potassium iodid, Influence of free acids on the reaction between. VIII. Capelle, Carl, 252.
Fertilizers. (*See also* Agricultural chemistry.) V. Crouzel, 73; Goupil, 95; Hensel, 103; Kloepper, 116; Lambert, 120; Lierke, 127; Methoden, 136; Minozzi, 138; Passon, 148; Payne, 149; Pick, 152; Rogoyski, 162; Siderski, 173; Snyder, 174; Vacirca, 186; Wiley and Ewell, 195; Wolff, 196; Zacharewicz, 198.
Filix acid. VIII. Reich, 350.
Fire, Chemistry of. V. Ingle, 111.
Fire extinction. V. Rudolffi, 163.
Five carbon ring compounds. VIII. Spiess, Paul, 372.
Flames, Colored. VIII. Kaempfe, 304.
Flavaspidic acid. VIII. Hausmann, 288.
Flavindulin. VIII. Eichler, 264; Stoffel, 375.
Flavone, Derivatives of. VIII. Löwy, Robert, 323; Neidhart, 338.
Flores-Koso. VIII. Lobeck, 322.
Flour. V. Marion, 133.
Fluorene and formic ester. VIII. Densch, 258.

Fluorene, Reactions of the methylene group in. VIII. Henle, Franz, 290.
Fluorene-oxalic ester. VIII. Densch, 258.
Fluorescein. VIII. Rodatz, 354.
Fluorescence and chemical constitution, Correlation of. VIII. Conzetti, 255.
Fluorids. VIII. Jäger, Albert, 301.
  Ferric. VIII. Koeppen, Otto, 310.
Fluorin. V. Moissan, 139. VIII. Alfa, 231; Oettel, 340.
  compounds, Organic. VIII. Nolte, 339.
Fluorindin. VIII. Guggenheim, 284.
Fluorindins, Synthesis of. VIII. Slaboszewicz, 370.
Fluor-iodates. VIII. Lauenstein, 317.
Fluor-manganites. VIII. Lauenstein, 317.
Fodder. V. Alquier, 40; Hoppe, 108. VIII Wübbena, 394.
Foods and nutrition. (*See also* Bread, Butter, Cheese, Flour, Meat, Preservation of food.) I. Patent Office, 5. V. Abel, 38; Atwater, W. D., 44, 45; Atwater and Woods, 45; Balland, A., 47; Beier, 50; Bevier, 52; Bigelow, 53; Blasdale, 55; Bonazzi, 57; Buchka, 62; Bujard, 63; Clautriau, 69; Elsner, 81; Fränkel, 86; Frissell, 88; Gadola, 89; Gibson, 92; Goss, 95; Heerwagen, 101; Hutchison, 110; Jaffa, 111: Jordan, 114; Langworthy, 122; Leffmann, 124; Loew, 128; Malméjac, 132; Manget, 132; Manuel, 132; Martel, 133; Mitchell, 138; Moor, 139; Pearmain, 149; Richards, 159; Rupp, 163; Sammlung der Bestimmungen, 166; Schneidemühl, 169; Seel, 171; Snyder and Frisby, 174; Staedtler, 176; Stone, 178; Sulla composizione, 179; Thompson, Henry, 182; Vereinbarungen, 187; Villiers and Collin, 188; Vogl, 188; Voorhees, 189; Wait, 190; Wiley, 194. VII British Food Journal, 221; Forschungsberichte, 224; Oesterreichische Chemiker-Zeitung, 226. VIII. Leignes-Bakhoven, 319.
Foods, Dyestuffs in. VIII. Weissbein, 388.
  Metals in. VIII. Mebold, 328.
Forensic chemistry. (*See also* Toxicology.) V. Kippenberger, 115; Klein, 115; Polstorff, 154
Formaldehyde. V. Hess, 104; Vanino, 186. VIII Sertz, 368.
  and terpenes VIII. Kriewitz, 313.
  Estimation of. VIII Romeyer, 355.
  in aqueous solution and hydrogen chlorid. VIII. Coops, 255.
  or methylene derivatives of acids of the sugar group. VIII. Clowes, 254.
Formaldehyde-bisulfite compounds. VIII. Glimm, 278.
Formaldehyde-sulfites. V. Glimm, 94.
Formazyl compounds. VIII. Schiess, 360.
Form-imido ester, Hydro-chlorid of. VIII. Hogrebe, 296.
Formyl compounds, Isomerism in. VIII. Lewin, Isaac, 320.
Formyl-acetic-ester. VIII. Bindemann, 242.
Formyl-carbamid. VIII. Gorski, 280.
Formyl-phenyl-acetic-ester. VIII. Koltscharsch, 311.
  Isomeric. VIII. Börner, 244.
Friedel-Crafts' reaction. VIII. Naphtali, 337; Smirnoff, 370.
Fruits. V. Bigelow, 53.
Fucacea. VIII. Koch, Ludwig, 309.
Fuels. V. Campredon, 64; Colomer, 71; Fischer, F., 84; Gill, A., 93; Jüptner, 114; Phillips, H. J., 152; Poole, 154; Popplewell, 154; Seyffart, 172.
Fungicides. V. Haywood, 101.

Furfur-acrolein. VIII. Röhmer, 354.
Furfural. VIII. Röhmer, 354.
  alcohol in coffee oil. VIII. Erdmann, 266.
Furfuran. VIII. Widmer, 390
  ring. VIII. Grälert, 281.
Furfurol and ethylamin. VIII. Schwabbauer, 367.
Furfurol and methylamin. VIII. Schwabbauer, 367.
Furfurol and succinic acid. VIII. Scheuermann, 360.
Furnaces. V. Duhem, 78; Jüptner and Toldt, 114; Moissan, 139.
Furodiazol, Tolyl- and benzyl derivatives of. VIII. Stevens, 375.
Fusel oil, Estimation of. (*See also* Alcohols and alcoholometry.) V. Brüggemann, 61

G

Galactose. V. Dienert, 75.
Galipot. VIII. Westerberg, 390.
Gallamic acid, Derivatives of. VIII. Gausser, 276.
Gallic acid. V. Biétrix, 53.
Gamboge. VIII. Lewinthal, 320.
Gas chemistry and gas analysis. V. Abady, 38; Ames, 41; Bates, 48; Bleier, 55; Boyle and Amagat, 59; Hempel, 102; Neumann, 142; Seyffart, 172; Winkler, 195, 196.
Gas coals, Nitrogen content of. VIII. Schilling, Eugen, 361.
  Ammonia production from. VIII. Schilling, 361.
Gas engines. V. Lencauchez, 125.
Gas, Illuminating. III. Welsbach, 22. V. Bössner, 57; Butterfield, 63; Calzavara, 64; Clauss, 69; Fletcher, T., 85; Frenzel, 87; Hornby, 108; Hunt, 109; Lefèvre, 124; Marpillero, 133; O'Connor, 144; Simmance, 173; Stevenson, 177; Truchot, 185.
Gas oil, Pyrogenic decomposition of. VIII. Müller, Eberhard, 334.
Gases and vapours, Combustible. VIII. Trautwein, 381.
Gases, Internal friction and thermic variation in. VIII. Breitenbach, 248.
  Liquefaction of. VIII. Lefèvre, 318.
  Permanent. VIII. Krüger, R., 313.
Gastric contents. V. Lassar-Cohn, 123.
Gelseminium sempervirens. V. Wiki, 193.
Glass. III. Henrivaux, 16. V. Angelo, 41; Bertran, 52; Biser, 54; Coffignal, 69; Henrivaux, 103; Hovestadt, 109; Shenstone, 172; Wetzel, 193. VIII. Focke, 270.
Glauconinic acid. VIII. Bischkopff, 243.
Globulin in blood-serum. VIII. Wallerstein, 386.
Glucosids. VIII. Jouck, 303.
Glue. V. Lehner, 125; Malepeyre, 131; Rideal, 160.
Glutaconic acid. VIII. Dreyfus, 262.
Gluten. VIII. Manget, 326.
Glutin-peptone. VIII. Bräunig, 246.
Glycerid in animal fats. VIII. Hansen, 287.
Glycerids. VIII. Neumayer, 338.
Glycerin and metallic oxids. VIII. Bullnheimer, 251.
Glycerin-aldehydes. VIII. Neuberg, 338.
Glycocol. VIII. Ihrfeldt, 299.
  compounds of aromatic amido-esters. VIII. Oppenheimer, Max, 341.
Glycosids. V. Rijn, 160. VIII. Proelss, 348.
Glyoxylic acid. VIII. Glass, 278.
Gold. (*See also* Cyanide process.) V. Begeer, 50; Bosqui, 58; Coignet, 70; Curle, 73; Eissler, 80; Gaze, 91; Park, 147; Wade, E. M., 189.
  Atomic weight of. VIII. Krüss, 313.
  Double salts of abnormally composed organic bases. VIII. Fenner, 268.
  in a current of chlorin, Behavior of. VIII. Langguth, 316.
  Iodometry of. VIII. Spiess, 372.

Guaiacol, Derivatives of. VIII. Falk, 267.
Guajacum. VIII. Pätzold, 343.
Guanamins, Aromatic. VIII. Elzanowski, 264.
Disubstituted. VIII. Cramer, 256.
Guanidin. VIII. Gibson, 277.
Guanin. VIII. Goslich, 280.
Gums. V. Cordemoy, 72; Dieterich, 75.
Gunpowder. (*See also* Explosives.) III. Lippmann, 18. V. Nimier, 143.
Gutta-percha. V. Clouth, 69.

H

Hæmatin. VIII. Kölle, Martin, 309.
Hæmoglobin. VIII. Rouchy, 356.
Halogen and hydroxyl. VIII. Fels, 268.
Halogen derivatives. VIII. Gressly, 282; Mouneyrac, 333.
Halogen in organic compounds, Determination of. VIII. Moppert, 333.
Halogen salts, Estimation of. VIII. Burnett, 251.
Halogens. V. Fels, 83. VIII. Jäger, Albert, 301.
Quantitative separation of. VIII. Specketer, 371.
Heavy metals, Quantitative analysis of. VIII. Schlossberg, 362.
Helium. VIII. Steudel, 375.
Helleborein. VIII. Thacter, 379.
Helleborin. VIII. Thacter, 379.
Hemipinic acid, Derivatives of. VIII. Van der Meulen, 383.
Indone derivatives of. VIII. Landau, 316.
Hemipinyl-hydroxylamin. VIII. Funk, 275.
Heptenic acid. VIII. Gully, 284.
Heptyl-amin soaps. VIII. Funcke, 275.
Heterocyclic compounds. V. Brühl, 61. VIII. Zinsser, 395.
Hetero-xanthin. VIII. Weinschenk, 388.
Hexacyclic ketones. VIII. Rath, 350.
Hexa-ethyl-benzene. VIII. Bartels, 236.
Hexa-hydro-anthranilic acid. VIII. Bull, 251.
Hexa-hydro-apophylenic acid. VIII. Wolff, 393.
Hexa-hydro-cinchomeronic acid. VIII. Wolff, Fritz, 393.
Hexa-hydro-ortho-phenyl-diamin. VIII. Bull, 251.
Hexa-hydro-para-benzyl-amin-carboxylic acid. VIII. Ladisch, 315.
Hexa-hydro-phthalic acids, Optically active. VIII. Conrad, 255.
Hexalkyl-diarsonium compounds. VIII. Gronover, 282.
Hexa-methylene, Derivatives of. VIII. Freer, 272.
Hexyl-aceto-acetic ester. VIII. Lundahl, 324.
Hexyl-aticonic acid. VIII. Simon, Joh., 370.
Hexyl-itaconic acid, Oxidation of. VIII. Simon, Joh., 370.
Hexyl-malonic ester. VIII. Lundahl, 324.
High temperature, Production of. V. Bredig, 60.
Hippuric acid. VIII. Fehlhaber, 267.
Hippuro-flavin. VIII. Fehlhaber, 267.
Honey dextrin. VIII. Müller, Alb., 334.
Honey from pine. VIII. Monheim, 332.
Hops. VIII. Barth, Georg, 236.
Humidity of air, Determination of. VIII. Richter, Bernhard, 352.
Humus from sugar and permanganate. VIII. Feilitzen, 267.
Hydantoins. VIII. Weiss, Maurus, 388.
Aromatic. VIII. Breustedt, 218.
Hydramins. VIII. Matthes, 327.
Hydrastinin. VIII. Voigt, Carl, 384.
Hydration of dissolved substances. VIII. Oppermann, 341.
Hydrazido-acetic acid. VIII. Lehmann, Martin, 318.
Hydrazids of aromatic acids and alkalies. VIII. Melsbach, 329.
Hydrazids of ortho-sulfo-benzoic acid. VIII. Brandt, Otto, 247.
Hydrazin. VIII. Imbert, 299; Küspert, 313; Stolle, 375; Zembrzuski, 395.

Hydrazin. [Cont'd.]
  and diazo compounds. VIII. Schiff, 360.
  derivatives. VIII. Bailey, 235.
  salts. VIII. Ebler, 263.
Hydrazin-iso-butyric acid. VIII. Frank, Christian, 271.
Hydrazo-anisol. VIII. Starke, 373.
Hydrazo-benzene. VIII. Baumann, Otto, 238; Levin, 320; Rülke, 356.
  and aliphatic aldehydes. VIII. Lummerzheim, 324.
  Nitroderivatives of. VIII. Stiasny, 375.
Hydrazones. VIII. Favrel, Georges, 267.
  Stereoisomeric. VIII. Schmidt, Otto, 362.
Hydrazonic acid. VIII. Halvorsen, 287.
Hydrindene. VIII. Dünkelsbühler, 262.
Hydrindone. VIII. Schiefer, 360.
Hydro-aromatic compounds. VIII. Guerbet, 284; Weiss, Richard, 388.
Hydro-aromatic ketones. VIII. Reinecke, 351.
Hydro-carbons. V. Berthelot, 52. VIII. Jacunski, 301.
  Aliphatic. V. Mouneyrat, 140.
  and potassium-persulfate. VIII. Moritz, Karl, 333.
  and sulfuric acid. VIII. Lehmann, Theodor, 318.
  Aromatic. VIII. Bartels, 236.
  Aromatic, and sodium. VIII. Lodter, 322.
  from beeswax. VIII. Jirmann, 302.
  Halogen substituted, and aluminium halogen compounds. VIII. Kerez, 306.
Hydro-chelidonic acid, Derivatives of. VIII. Strube, 376.
Hydro-collidin. VIII. Gilbert, 277.
Hydro-cornicularic acid, Unsaturated lactones of. VIII. Straus, 376.
Hydro-cotarnin and aldehydes. VIII. Kersten, 306.
Hydrogen V. Schoop, M. U., 169. VIII. Lettermann, 320.
Hydrogen chlorid. VIII. Schmitt, 362.
Hydrogen cyanid. VIII. Bartsch, 236; Rodrian, 354.
  Sesqui-hydro-chlorid of. VIII. Schnitzpahn, 363; Skita, 370.
  Syntheses by means of. VIII. Purucker, 348.
Hydrogen dioxid. VIII. Kohen, 310; Lehnert, 318; Schlossberg, 362.
  and hydrogen iodid, Catalysis in the reaction between. VIII. Brode, 249.
  Use of, in quantitative analysis. VIII. Brühl, 249.
Hydrogen electrode, Depolarisation of. VIII. Panschaud, 343.
Hydrogen sulfide group. VIII. Ebler, 263.
Hydro-pyridin, Synthesis in. VIII. Brunswig, 250.
Hydroquinone-methyl-ketone. VIII. Behn, Richard, 239.
Hydroquinone-tetra-carboxylic acid. VIII. Wolman, 393.
Hydro-resorcin. VIII. Schilling, Rud., 361.
Hydro-rubeanic acid. VIII. Frölich, Julius, 274.
Hydro-sulfurous acid, Sodium- and calcium salts of. VIII. Frank, A., 271.
Hydroxamic acid. VIII. Pickard, 346.
Hydroxy-lactones. VIII. Lux, 325.
Hydroxyl. V. Fels, 83.
Hydroxylamin. VIII. Ebler, 263; Kohen, 310.
  Alkyl and acyl derivatives of. VIII. Peschkes, 344.
  Alkylated. VIII. Mamlock, 326.
  Alkylation of. VIII. Hilland, 293.
  compounds of metals. VIII. Luc, 324.
  Derivatives of. VIII. Hapel, 287.
  Inorganic compounds of. VIII. Kohlschütter, Volkmar, 311.
Hydroxylamin-hydro-chlorid, Quantitative separations by means of. VIII. Rühl, 356.
Hygrin, Synthesis of. VIII. Hollander, 296.

Hygrinic acid, Synthesis of. VIII. Ettlinger, 266.

Hyponitrous acid, Conversion of, into hydrazin. VIII. Brackel, 246.

Hyposulfites. VIII. Steinhäuser, 374.

I

Imid-azols. VIII. Fezer, 268; Kunckell, 314.

Imido-ethers. VIII. Goldschmidt, Max, 279.

Imids of dibasic acids, Halogen derivatives of. VIII. Schwede, 367.

Indandione and meta- and para-oxybenzaldehydes. VIII. May, 327.

Indazol derivatives. VIII. Jelensperger, 302.

Indazol group. VIII. Epstein, 265; Gruskiewicz, 283.

Indazol, Ketone chlorids and quinones of. VIII. Weldert, 389.

Indazolone, Synthesis of. VIII. König, 309.

Indazols. VIII. Sondheimer, 371.
  Formation of. VIII. Braun, 247.

Indene. VIII. Schiefer, 360.
  Condensation products of. VIII. Bühner, 250.

India rubber. V. Brannt, 59; Clouth, 69; Herbet, 103; Obach, 144; Pearson, 149; Weber, 191.

Indicators. V. Cohn, 70.

Indigo. V. Jaubert, 111; Reissert, 158; Tulleken, 185. VIII. Wangerin, 386.
  Artificial. III. Brunk, 13; Reissert, 20. VIII. Koettnitz, 310.

Indigo series. VIII. Samson, 358.

Indigo-carmin. VIII. Naumann, 337.

Indigo-disulfonic acids, Isomeric. VIII. Schubarth, 365.

Indigo-oxim. VIII. Pickard, 346.

Indigo-white, Acyl derivatives of. VIII. Drescher, 261.

Indones. VIII. Dilthey, 260; Wiedermann, 390.

Indoxyl, Acyl derivatives of. VIII. Drescher, 261.

Indoxyl like compounds. VIII. Tedesko, 378.

Indoxylic acid, Acyl derivatives of. VIII. Drescher, 261.

Indulin, Derivatives of. VIII. Linnemann, 322.

Ink. V. Lehner, 125.

Inorganic chemistry. V. Beddow, 49; Biltz, 54; Briggs, 60; Carbayo, 64; Carstensen, 65; Christensen, C., 67; Dammer, 73; Dupré, 79; Erdmann, 81; Fatigati, 83; Grimaux, 96; Hartmann, 100; Harz, 100; Hemmelmayr, 102; Hinds, 105; Hoff, 106; Holleman, 107; Jörgensen, S. M., 113; Jones, C., 113, 114; Jones, L. M., 114; Klein, 115; Knoevenagel, 116; Krug, 119; Lehmann, 125; Lengfeld, 125; Magnanini, 131; Martin, G. H., 133; Meldola, 135; Montgomery and Smith, 139; Oechsner, 144; Oldberg, 145; Oppenheimer, 146; Ostwald, 146; Peter, 151; Piltz, 153; Pinner, 153; Remsen, 158; Revoy, 158; Richter, 160; Roscoe and Harden, 162; Rüdorff, 163; Schmidt, Julius, 168; Sexton, 172; Shenstone, 172; Skerry, 173; Sperber, 175; Squinabol, 176; Tassinari, 180; Thurston, 183; Torrey, 184; Trotmann, 185; Venable and Howe, 187; Walker, 190; Watson, 191; Woodward, 197; Wurtz, 197.

Inorganic compounds. VIII. Kohlschütter, Joh., 311.

Inorganic salts, Incomplete colloidal nature of. VIII. Blanck, 243.
  Molecular weight of. VIII. Maiborn, 325.

Insecticides. V. Haywood, 101.

Invert sugar. VIII. Willeke, 391.

Invertin. VIII. Osborne, 342.

Iodates. VIII Köppen, Otto, 310.
  Crystallography of. VIII. Eakle, 262.

Iodid-chlorid, Aromatic. VIII. Hinterskirch, 294.

Iodids and ferric salts. VIII. Hackeloer-Köbbinghoff, 285.

- Iodin. VIII. Hauser, 288.
  - compounds. VIII. Sullivan, 377.
  - Oxyacids of. VIII. Liebknecht, 321.
  - substitution products of aromatic alcohols, aldehydes, and acids. VIII. Seidel, 368.
- Iodin-tri-chlorid, Double salts of. VIII. Schlegelmilch, 361.
- Iodo-mesitylene. VIII. Roggatz, 354.
- Iodo-meta-xylene, Symmetrical. VIII. Schmierer, 362.
- Iodo-methyl-quinolin. VIII. Alberti, 231.
- Iodo-nitro-para-xylene. VIII. Pabst, 343.
- Iodo-nitro-toluene and polyvalent iodin, Derivatives of. VIII. Vogel, Karl, 384.
- Iodo-pseudo-cumene and polyvalent iodin. VIII. Meyer, Robert, 331.
- Iodo-quinolin and polyvalent iodin, Compounds from. VIII. Scholvien, 364.
- Iodoso-naphthalene, Derivatives of. VIII. Schlösser, 362.
- Ions. V. Böttger, W., 57; Hollard, 107. VIII. Lemme, 319; Nernst, 338; Paul, 344; Urbasch, 382.
  - Migration of. VIII. Berliner, 241; Bogdan, 245; Bukschnewski, 251; Goldhaber, 279; Goldlust, 279; Metelka, 330.
  - of sulfuric acid. VIII. Starck, 373.
- Ipoh arrow poison. VIII. Geiger, 276.
- Iridium. I. Palmaer, 4. V. Leidié, 125.
- Iron. III. Beck, 12. V. Blair, 54; Jüptner, 114; Phillips, Francis, 152; West, 193.
  - Electrochemistry of. VIII. Toepffer, 380.
  - Nitroso compound of. VIII. Wiede, 390.
  - oxalates. VIII. Platsch, 346.
  - Passivity of. VIII. Finkelstein, 268.
  - salts. V. Geschwind, 92.
  - sulfid and nitric oxid. VIII. Rosenberg, 355.
- Isindazol. VIII. Sondheimer, 371.
- Iso-amyl-aceto-acetic ester and nitric oxid. VIII. Vogel, Julius, 384.
- Iso-amyl-benzene, Derivatives of. VIII. Steinorth, 374.
- Iso-bromo-methacrylic acid. VIII. Morschöck, 333.
- Iso-butane, Liquid. VIII. Degner, 258.
- Iso-butyl-citraconic acid and potassic permanganate. VIII. Kælbrandt, 304.
- Iso-butyl-ethyl-piperidin. VIII. Goldschmidt, Oscar, 279.
- Iso-butyl-ethylene-pyridin. VIII. Goldschmidt, Oscar, 279.
- butyl-iso-quinolin. VIII. Freist, Gustav, 272.
- Iso-butyl-itaconic acid and potassic permanganate. VIII. Kælbrandt, 304.
- Iso-butyl-mesaconic acid and potassic permanganate. VIII. Kælbrandt, 304.
- Iso-cumalic acid. VIII. Hauser, Max, 288.
- Iso-dialuric acid. VIII. Koech, 309.
  - and thio-carbamid. VIII. Vogel, 384.
- Iso-diazo-methane, Derivatives of. VIII. Lehmann, Martin, 318.
- Iso-dicrotonic acid. VIII. Krafft, 311.
- Iso-diphenyl-fluoridin. VIII. Duret, 262.
- Iso-dithio-biazolones. VIII. Schneider, Sebastian, 363.
- Iso-eugenol, Derivatives of. VIII. Portmann, 347.
- Iso-hepto-dilactone. VIII. Friedmann, Walther, 273.
- Iso-methyl-morphol. VIII. Sumuleanu, 377.
- Iso-nitramins, Stability in, and formation of salts from. VIII. Buchner, 250.
- Iso-nitroso compounds. VIII. Veit, 383.
- Iso-nonyl-amid. VIII. Kullhem, 314.
- Iso-nonylic acid. VIII. Kullhem, 314.
- Isopentane, Bromo derivatives of. VIII. Frank-Kamenetzky, 271.
- Iso-phenanthrolin. VIII. Trapp, 380.
- Iso-phenyl-acetic acid. VIII. Lingg, 322.

Isophorone. VIII. Müller, Friedrich, 334.

Iso-propyl-iso-paraconic acid. VIII. Thron, 379.

Iso-pulegone. VIII. Roeder, Georg, 354; Schauwecker, 360.

Iso-purpuric acid. VIII. Petri, 345.

Iso-pyrazol derivatives from di-aceto-succinic ester and aromatic diazo compounds. VIII. Schlesinger, 361.

Iso-rhodano-pentammin cobalt series. VIII. Müller, Herbert, 335.

Iso-rosindulin dyes. VIII. Müller, Franz, 334.

Iso-rosindulins. VIII. Bruhn, Gustav, 249; Gutbier, Felix, 284; Ott, 342.

Iso-saccharin. VIII. Franz, Arthur, 271.

Iso-thujon. VIII. Freist, 272.

Isoxazols. VIII. Thomaschewski, 379; Zöpfchen, 395.

Itaconic acid. VIII. Frankenstein, 271.

K

Keramics. (*See also* Clay.) V. Auscher, 46; Larchevêque, 122; Shaw, 172. VII. Allgemeiner Anzeiger, 219. VIII. Stoermer, 375.

Ketazins. VIII. Zinkeisen, 395.

Ketipic ester. VIII. Weil, Stanislas, 387.

Ketone-chlorids. VIII. Schneider, Wilhelm, 363.

Ketone-dilactones. VIII. Guthrie, 284.

Ketone-hydro-quinolin. VIII. Herwig, 291.

Ketone-lactones. VIII. Lux, 325.

Ketone-oxalic ester, Benzoyl and anisoyl derivatives of. VIII. Hogrebe, 296.

Ketones. V. Kölichen, 116. VIII. Leser, 319.
  Aliphatic aromatic. VIII. Hoedt, 294; Wirtz, 392.
  Aliphatic, and bromin. VIII. Sanders, 358.
  and ammonium-hydro-sulfid. VIII. Wuyts, 394.

Ketones. [Con'td.]
  and cyano-acetic ester. VIII. Riedel, Frank, 352.
  Aromatic. VIII. Allendorff, 231; Behn, Richard, 239; Lühder, 324; Sorge, 371.
  Electrochemical reduction of. VIII. Brand, Kurt, 247.
  Formation of acetals from. VIII. Raben, 349.
  Sulfur derivatives of. VIII. Hilgendorff, 293.
  Unsaturated. VIII. Kahnemann, 304.
  Unsaturated, and hydroxylamin. VIII. Matfus, 327.
  Unsaturated aromatic. VIII. Gollnitz, 280.

Ketone-terpin. VIII. Baumgärtel, 238.

Ketonic acids. VIII. Ach, 230; Kunlin, 314; Schilling, Rud., 361.
  Electrolysis of. VIII. Uhl, 382.
  Sulfur compounds from. VIII. Claudius, 253.
  Sulfur derivatives of. VIII. Deinhardt, 258.

Ketonic esters, Acylic derivatives of. VIII. Bongert, 245.
  Basic metallic compounds of. VIII. Stoeber, 375.
  Ortho-acyl derivatives of. VIII. Behre, 239.

Ketoxims. VIII. Farmer, 267; Jablonski, 300.
  Aliphatic. VIII. Kaplan, 305.
  and acid chlorids. VIII. Koppen, 311.

Kinetic theory. V. Meyer, Oscar, 136.

Kyanidin. VIII. Rappeport, 349.

L

Laboratories. III. Beckmann, 12; Cajori, 13; Fischer, 15; Fresenius, 15. V. Dennstedt, 75; Fischer and Guth, 84; Franchimont, 86; Granger, 96; Zilleruelo, 198. VII. Berichte des Verbandes, 221.

Lactones. VIII. Hjelt, 294; Sulzberger, 377.
  Aliphatic. VIII. Herbrand, 291.
  and hydrazin-hydrates. VIII. Wedel, 387.
Lactonic acid. VIII. Hirsch, Sylvain, 294.
Lævulinic acid. VIII. Lepère, 319.
Lævulose. VIII. Willeke, 391.
Lanolin. V. Donath and Margoscher, 76.
Laudanosin. VIII. Athanasescu, 233.
Lauric acid, Degradation of, to capric acid. VIII. Ehestaedt, 263.
Lauronolic acid. VIII. Blanc, 243.
Laurophenones. VIII. Wirtz, 392.
Lead. V. Collins, 70; Fairie, 82; Iles, 110; Lambert, 120. VIII. Waldeck, 385.
Lead accumulators. VIII. Hirsch, Paul, 294.
Lead, Arsenites of. VIII. Dessner, 259.
Lead chlorid. VIII. Sacher, 357.
Lead salts, Behavior of, in solutions. VIII. Ende, 265.
  in aqueous solutions. VIII. Fernau, 268.
Lead sulfate. VIII. Fischer, Ferdinand, 269.
Lead water pipes, Corrosion of. V. Tergast, 181.
Leather. V. Villon, 188.
Leguminosae, Seeds of. VIII. Weiss, Karl, 388.
Lepidin derivatives. VIII. Bijvanek, 242.
Leucauramin. VIII. Heinze, 290.
Levisticum officiale. VIII. Braun, Richard, 248.
Lighting. V. Defays, 74.
Lime. V. Dibdin, 75.
Limonene group. VIII. Timmermann, 380.
Liquefaction of gases. V. Caubet, 66; Cauro, 66; Hardin, 99; Sloane, 174. VIII. Caubet, 253; Cauro, 253.
Liquid air. V. Hehl, 102; Kausch, 114; Mascareñas, 133; Sloane, 174.
Liquids, Crystalline. VIII. Schneider, Friedrich, 363.
Lithium ammoniacal haloid salts. VIII. Bonnefoi, 245.
Lithium haloid salts and amins. VIII. Bonnefoi, 245.
Looft's ketone. VIII. Smith, Longfield, 370.
Lovage, Essential oil of. VIII. Braun, Richard, 248.
Luminescence. VIII. Arnold, Wilhelm, 233.
Lupetidin. VIII. Engels, 265.
Lupinus albus. VIII. Davis, 257.
Lupinus angustifolius. VIII. Davis, 257.
idin and formaldehyde. VIII. Engels, 265.
Lutidyl-mercaptan. VIII. Trabert, 380.
Lyxose. VIII. Ollendorff, 341.

M

Madder V. Jaubert, 111.
Magnesium alkyls. V. Grignard, 96.
Magnesium-bicarbonate. VIII. Reuter, 351.
Magnesium-manganite. VIII. Wegeli, 387.
Malaga wine. VIII. Leixl, 319.
Malic acid, Complex salts of. VIII. Itzig, 300.
Malonic ester. VIII. Engelmann, 265.
  and cyanogen. VIII. Hoepner, 295.
  and unsaturated compounds. VIII. Herermann, 291.
  and unsaturated ketones. VIII. Gärtner, 275.
Mandelic ester and hydrazin hydrate. VIII. Müller, Karl, 335.
Mandragora root. VIII. Wentzel, 389.
Manganates. VIII. Jolles, 303.
Manganese. I. Talbot, 5.
Manganese chlorids. VIII. Best, H., 241.
Manganese salts. VIII. Frei, Ernst, 272.
Manganites. VIII. Jolles, 303.
Mannite. VIII. Malbot, 325.
Manufacturers. I. Addressbuch, 1; Chemical Manufacturer's Directory, 2.
Margarin. V. Larbalétrier, 122 VIII. Liebermann, Willy, 321; Sobiech, 371.

Matches. V. Mémorial, 135.
Meat. V. Wenger, 193; Woods, 197.
  Preservation of. VIII. Lanwer, 317.
Medical chemistry. II. Cesaris, 6. III. Griesbach, 16. V. Douglass, 77; Herz, 103; Hofmeister, 107; Koeppe, 117; Kossel, 118; Krüger, 119; Oppenheimer, 146; Philiâtre, 151; Self-examination, 171; Supino, 179; Tappeiner, 180; Wolff, L., 197; Zechuisen, 198. VII. Annali, 220; Annual Report, 220; Biochemisches Centralblatt, 221; Bulletin de l'Institut Pasteur, 221.
Melamin. VIII. Fries, Harold, 273.
Menthenes. VIII. Schulenberg, 366.
  Isomeric. VIII. Werner, 389.
Menthenone. VIII. Schulenberg, 366; Stirm, 375.
Menthol. VIII. Jahn, Stephan, 301.
  series. VIII. Herrmann, Heinrich, 291.
Menthone. VIII. Oehler, 340; Wicke, 390.
  Bromination products of. VIII. Seuffert, Otto, 368.
  Synthesis of. VIII. Klages, Ludwig, 307.
Menthyl-amins, Isomeric. VIII. Werner, 389.
Mercaptans and sulfur-chlorid. VIII. Hornung, 297.
Mercapturic acid. VIII. Koenig, Georg, 310.
Mercuric arsenites. VIII. Dessner, 259.
Mercuric cyanid, Double salts of. VIII. Nylander, 339.
Mercuric salts and aromatic compounds. VIII. Ilzhöter, 299.
Mercuric salts, Complex. VIII. Jander, 301.
Mercury. VIII. Dürselen, 262; Kissel, 307.
  Ammoniacal compounds of. VIII. Rittershausen, 353.
  Halogen double compounds of. VIII. Harth, 288.
Mercury. [Cont'd.]
  Nitrogen compounds of. VIII. Marburg, 326.
  Organic compounds of. VIII. Bosch, 246; Sand, Julius, 358.
  Oxyhalids of. VIII. Wartenberg, 386.
  Toxicology of. VIII. Lehnert, 318.
Mercury-antimonid and alkyl-iodids. VIII. Mannheim, 326.
Mercury-iodids. V. François, 86.
  and ammoniacal compounds VIII. François, 271.
Mesitol-tri-bromid. VIII. Hähnle, 286.
Mesityl-hydroxylamin. VIII. Rising, 353.
Mesityl-oxid. VIII. Müller, Friedrich, 334.
  and semi-carbazid. VIII. Kaiser, 304.
  Derivatives of. VIII. Lieck, 321.
Mesityl-oxid-oxims, Isomeric. VIII. Gley, 278.
Meso-methyl-phenanthridin, Derivatives of. VIII. Genequand, 277.
Meta-amido-anthraquinone, Derivatives of. VIII. Haebler, 285.
Meta-amido-phenol. VIII. Sundmacher, 377.
  Alkylated. VIII. Scheutz, 360.
  and aceto-acetic ester. VIII Schwarz, Otto, 367.
Meta-amido-quinolin, Derivatives of. VIII. Terheggen, 378.
Meta-ana-dichloro-para-amido-quinolin. VIII. Stierlin, 375.
Meta-ana-dichloro-para-bromo-quinolin. VIII. Holder, 296.
Meta-anisidin. VIII. Bush, 251.
Meta-bromo-acetophenone. VIII. Dettwiller, 259.
Meta-bromo-anilin and amido sulfonic acid. VIII. Jacoby, Paul, 300.
Meta-bromo-benzoic acid, Hydrazids and azids of. VIII. Portner, 347.
Meta-bromo-mandelic acid. VIII. Dettwiller, 259.
Meta-bromo-phenyl-hydroxylamin. VIII. Feilmann, 267.

Meta-chloro-anilin and amido-sulfonic acid. VIII. Jacoby, Paul, 300.

Meta-chloro-anilin-sulfonic acid. VIII. Hinden, 293.

Meta-chloro-benzoic acid, Nitrogenous derivatives of. VIII. Foerster, 270.

Meta-cresol, Chloro derivatives of. VIII. Goessel, 278.

Meta-cresol, Ethylated. VIII. Woltze, 394.

Meta-cresotic acid, Derivatives of. VIII. Wagner, Josef, 385.

Meta-cyano-benzyl-chlorid. VIII. Ehrlich, 264.

Meta-iodo-acetanilid. VIII. Wikander, 391.

Meta-iodo-nitro-benzene. VIII. Wikander, 391.

Meta-iodo-toluene and polyvalent iodin, Derivatives of. Umbach, 382.

Meta-iso-cymol. VIII. Bartow, 236.

Metallic double thio-cyanates. VIII. Cohn, R., 254.

Metallic hydroxids, Colloidal. VIII. Hofmann, Wilhelm, 296.

Metallic oxids, Colloidal. VIII. Elten, 264.

Metallic salts. VIII. Jordis, 303
- in pyridin solution, Reaction of. VIII. Schroeder, Joh., 365.

Metalloids. V. Basin, 48; Garçon, 89; Margat-L'Huillier, 132; Nagl, 141; Oechsner, 144; Roscoe and Schorlemmer, 162. VIII. Anderson, 232.

Metallurgy. II. Cremer, 6; Heyne, 7. III. Escales, 15; Gowland, 16. V. Austen, 46; Cadet, 64; Howe, 109; Le Verrier, 126; Morgan, 139; Schnabel, 169. VII. Metallographist, 226.

Metals. I. Garçon, 3. III. Del Mar, 14; Rössing, 20. V. Basin, 48; Ditte, 76; Hiorns, 105; Joly and Lespican, 113; Oechsner, 144; Roscoe and Schorlemmer, 162.
- Colloidal. V. Bredig, 60; VIII. Dopfer, 261; Elten, 264.

Metals. [Cont'd.]
- Coloring of. V. Ghersi, 92; Vanino, 187.
- Distillation of. V. Roth, 162.
- Double nitrites of. VIII. Oppenheim, Kent, 341.
- Halogen compounds of. VIII. Lenormand, 319.
- Nitration of. VIII. Zimmer, M., 395.
- of the alkaline earths. VIII. Iggena, 298.
- Quantitative separation of. VIII. Lesinsky, 319.
- Separation of VIII. Elias, 264; Mayer, Jo, 328; Schmitt, 362.
- Separation of, by hydrazin. VIII. Biedermann, 242.

Meta-methoxy-benzaldehyde and acetophenone, Condensation of. VIII. Zerowski, 395.

Meta-methyl-quinolin. VIII. Plücker, 346.

Meta-nitro-acetophenone. VIII. Wasserzug, 386

Meta-nitro-benz-hydroxamic-chlorids, Decomposition products of. VIII. Springmann, 372.

Meta-nitro-bromo-acetophenone-oxim-VIII. Korten, 311.

Meta-nitro-cinnamic aldehyde and acetophenone, acetone and nitro-acetophenones. VIII. Siemiatkowski, 369.

Meta-nitro-hippuric acid, Hydrazid and azid of. VIII. Hallaway, 286.

Meta-nitro-para-methoxy-cinnamic acid. VIII. Grabfield, 280.

Meta-oxy-benzaldehyde and chlorin. VIII. Kammann, 304.

Meta-oxy-benzaldehyde, Derivatives of. VIII. Krause, 312.

Meta-oxy-benzoic acid and alkali-persulfate. VIII. Rücker, 356.

Meta-oxy-hexa-methylene carboxylic acid. VIII. Coblitz, 254.

Meta-oxy-phenyl-para-tolyl-amin. VIII. Veillon, 383.

Meta-para-ana-tri-chloro-quinolin. VIII. Kuhlmann, 314.

Meta-phenetidin. VIII. Bush, 251.
Meta-phenyl-ethyl-amin. VIII. Sommer, 371.
Meta-phenylene-diamin and acetone-dicarboxylic ester. VIII. Garben, 276,
Meta-phenylene-diamin and ortho-aldehydic acids. VIII. Elzanowski, 264.
Meta-phosphates. VIII. Wiesler, 391.
Meta-phosphoric acid. VIII. Heimann, 289.
Meta-saccharin. VIII. Nägeli, 336.
Meta-stannates. VIII. Jacobsohn, 300.
Meta-toluylene-diamin, Azo and diazo compounds of. VIII. Maassen, 325.
Meta-tolyl-hydroxylamin. VIII. Ter-Sarkissjan, 378.
Meta-vanadates. VIII Bédouret, 238.
Meta-xylene, Asymmetric iodoso and iodonium compounds from. VIII. Howells, 297.
Meta-xylene, Derivatives of. VIII. Kipping, 306.
Meta-xylenol, Penta-bromid of. VIII. Hampe 287
Meta-xylidin-sulfonic acid. VIII. Maué 327
Meta-xylo-benzalazin. VIII. Haager, 285.
Meta-xylyl-amin. VIII. Sommer, 371.
Methane. V. Schneider, 169.
Methenyl-phenyl-tolyl-amidins, Isomeric. VIII. Zwingenberger, 396.
Methoxy-ethoxy-naphto-flavone. VIII. Keller Ernst, 306.
Methoxy-phenanthrene. VIII. Buckow, 250 Seydel, Curt, 368.
  Synthesis of. VIII. Wolfes, 393.
Methylgroup VIII. Schmidt, Aug., 362.
Methyl-adipinic acid, Semialdehyde of. VIII. Schauwecker, 360.
Methyl-alkyl-chloro-pyrazol. VIII. Greiss, 281.
Methyl-allyl-lactic acid, Conversion of, into dimethyl-tetra-hydro-furfuran-carboxylic acid. VIII. Boyd, 246.
Methyl-anilin phosphin and oxy-phosphazo compounds. VIII. Danziger, S., 257.
Methyl-anisyl-chloro-phosphin. VIII. Albert, Max, 231.
Methyl-anthracene. VIII. Larsen, 317.
Methyl-benzyl-hydrazin. VIII. Sprenger, 372.
Methyl-bromo-cinnamons. VIII. Schröder, Franz, 364.
Methyl-chloroform and benzene in the presence of aluminium-chlorid. VIII. Kuntze-Fechner, 314.
Methyl-cinnamic acids, Stereoisomeric. VIII. Schröder, Franz, 364.
Methyl-cumarone. VIII. Kissel, Fritz, 307.
Methyl-cyclo-hexanone-oxim. VIII. Ottemann, 342.
Methyl-cyclo-hexylamin. VIII. Tams, 378.
Methyl-dibenzoyl-methane. VIII. Beyme, 242.
Methylene groups. VIII. Clowes, 254.
Methylene-bis-aceto-acetic esters, Substituted. VIII. Billmann, 242.
Methylene-bis-acetyl-acetol, Tautomeric forms of VIII Stiegel, 375.
Methylene-ortho-dinitril-anilin. VIII. Rohmer 355.
Methylene-quinolin-carboxylic acid. VIII. Jablonski, Siegfried, 300.
Methyl-ethyl-ketone and ethylic succinate, Condensation of. VIII. Strigel 376.
Methyl-ethyl-oxalidin. VIII. Baumann, Georg, 238.
Methyl-ethyl-pyrazolin. VIII. Rechnitz, 350.
Methyl-ethyl-succinic acids. VIII. Fritzweiler, 274.
Methyl-glyceric-aldehydes. VIII. Frank, Franz, 271.
Methyl-heptenyl-amin. VIII. Mittelstenscheid, 332.
Methyl-hexanone. VIII. Tams, 378.
Methyl-hexylene-ketone. VIII. Meyer Heinrich, 330.

Methyl-hydro-quinolin. VIII. Feer, 267.
Methyl-iso-oxazol-carboxylic acid. VIII. Schob, 363.
Methyl-ketol. VIII. Clemen, 254.
Methyl-keto-penta methenylene. VIII. Smith, Longfield, 370.
Methyl-keto-penta-methylene-carboxylic ester. VIII. Groeneveld, 282.
Methyl-mesaconic acid, Oxidation of, by potassic permanganate. VIII. Dannenberg, 257.
Methyl-naphthalene. VIII. Plücker, 346.
Methyl-naphtho-cinchoninic acid. VIII. Hollaender, 296; Traub, 381.
Methyl-naphtho-furfurans. VIII. Schrackenberger, 364.
Methyl-naphtho-morpholin. VIII. Franke, 271.
Methyl-oxy-adipinic acid. VIII. Langguth, 316.
Methyl-para-amido-meta-oxy-benzoate, Sulfonic derivatives of. VIII. Jacob, Paul, 300.
Methyl-para-methyl-cinchoninic acid. VIII. Köhler, Robert, 309.
Methyl-pentosanes. VIII. Widtsoe, 390.
Methyl-pheno-morpholin. VIII. Brockerhof, 248.
Methyl-phenyl-cyclohexenone. VIII. Goldsmith, 279.
Methyl-phenyl-hydrazin. VIII. Peyau, 345.
Methyl-pimelic acid, Isomeric, and cyclic ketones from. VIII. Ehret, 263.
Methyl-pseudo-carbo-styril, Derivatives of. VIII. Müller, Ferdinand, 334.
Methyl-pyridin-carboxylic acid, Derivatives of. VIII. Drexler, 261.
Methyl-pyrrolidin. VIII. Fenner, 268.
Methyl-pyrrolidin-dicarboxylic acid. VIII. Lessing, 320.
Methyl-pyrrolin. VIII. Hielscher, 293.
Methyl-quinolones, Halogen substituted. VIII. Ulbricht, 382.
Methyl-tetra-hydro-picolin and acetaldehyde. VIII. Brandt, Leopold, 247.
Methyl-tetrose. VIII. Kohn, 311.
Methyl-thebaol. VIII. Seydel, 368.
Methyl-thio-carbimid and hydrazin-hydrate. VIII. Gartenschläger, 276.
Methyl-umbelliferone, Derivatives of. VIII. Obermiller, Julius, 340.
Methyl-uracil. VIII. Weinschenk, 388.
Methyl-uric acid. VIII. Dietrich, 260.
Methyl-xanthin. VIII. Weinschenk, 388.
Michler's ketone and methylic sulfate. VIII. Zohlen, 396.
Microscopical chemistry. V. Erdmann, 82.
Milk. I. Rothschild, 5. V. Aikman, 39; Arnold, L. R., 43; Eichloff, 80; Farrington, 83; Frigerio, 88; Goupil, 95; Laan, 119; Lajoux, 120; Lorente, 129; Milk, 137; Rothschild, 163; Rovesti, 163; Schlossmann, 168. VIII. Frank, Karl, 271; Fudickar, 274; Grohmann, 282; Haffner, 286; Hanne, 287; Höfer, 294; Müller, Wilh., 336; Rauch, 350; Simon, G., 370; Steiner, 374.
Milk, Estimation of ashes in. VIII. Anger, 232.
Milk sugar. VIII. Ollendorf, 341.
  and diluted hydro-chloric acid. VIII. Rindell, 353.
Mineral acids. V. Guillet, 97.
Mineral analyses. VIII. Kiesewetter, 306.
Mineral oils. VIII. Gruning, 283.
Mineral waters. V. Casoria, 65; Crook, 72; Fresenius, H., 87, 88; Hanko, 99; Koeppe, 117; Zavala, 198. VIII. Hintz, 294; Piétri, 346.
  Artificial. V. Kirkby, 115; Michotte, 137.

Mineralogical chemistry. V. Arendt, 42; Bonatti, 57; Campbell, 64; Carnot, 65; Clarke, 68; Giongo, 93; Hemmelmayr and Brunner, 102; Hillebrand, 105; Koninck, 118; Lambuc, 120; Lipp, 127; Lupano, 130; Pozzi-Escot, 154; Strindberg, 178. VIII. Cleve, 254; Svensson, 378.

Mining. (*See also* Assaying.) II. Cremer, 6; III. Escales, 15; V. Fisk, 85; VII. Jahrbuch für das Eisenhüttenwesen, 225.

Molecular weight. V. Moureu, 140; Mourlot, 140. VIII. Moufang, 333; Moureu, 333; Unruh, 382.

Molybdenum. VIII. Atterberg, 234; Guichard, Marcel, 284; Heide, 289; Hommel, 297; Nagel, Wilhelm, 336.
  and chlorin. VIII. Blomstrand, 243.

Mono - benzoyl - malonic ester. VIII. Neuhäusser, 338.

Mono-bromo-malic acid. VIII. Dueck, 262.

Mono-bromo-methyl-heptenone. VIII. Blembel, 243.

Mono-chloro-ketones. VIII. Johannssen, 303.

Mono-ethyl-acetal. VIII. Henkel, 290.

Mono-ethyl-anilin, Phosphins of. VIII. Ottens, 342.

Mono-oxy - benzal bromo - indanone. VIII. Miniat, 331.

Mono - oxy - dialphyl - acetic lactones. VIII. Simonis, 370.

Mono-sulfo-oxy-arsenates. VIII. Gutmann, 284

Morphin. V. Sumuleanu, 179. VIII. Oosterbaan, 341.

Morpholin. V. Sumuleanu, 179.
  Derivatives of. VIII. Franke, 271.

Mortar. V. Dibdin, 75.

Mucic acid, Hydrazid of. VIII. Darapsky, 257.

Muco-dilactone. VIII. Koenig, Julius, 310.

Muco-lactonic acid. VIII. Koenig, Julius, 310.

Musk, Artificial. VIII. Pommier, 347.

Myristo-phenones. VIII. Wirtz, 392.

N

Naphthalene. VIII. Hellström, 290; Iacchia, 298.
  Chloro derivatives of. VIII. Bueb, 250; Widman, 390.
  Derivatives of. VIII. Consonno, 255; Rössler, 354.
  Iodoso and iodonium compounds of. VIII. Auerbach, Martin, 234.
  Isomeric derivatives of. VIII. Kipping, 306.

Naphthalene series. VIII. Knapp, 308; Minich, 331.
  Flavone derivatives of. VIII. Ullmann, 382.
  Oxy-aldehydes in. VIII. Horlacher, 297.

Naphthalene-diazo-oxids. VIII. Baum, 237.

Naphthalene - sulfonic acids. VIII. Alén, 231.

Naphthalic acid, Derivatives of. VIII. Zuckmayer, 396.

Naphthenes. V. Wischin, 196.

Naphthionic acid, Derivatives of. VIII. Carliczek, 252.

Naphtho-azonium compounds. VIII. Sutherst, 378.

Naphtho-furfuran. VIII. Giescke, 277; Gräfenhan, 280.

Naphthoic acid, Hydrazids of. VIII. Zinsser, 395.

Naphtho-imido-azol. VIII. Reindl, 351.

Naphtho-oxy-acetic acid. VIII. Spitzer, 372.

Naphtho - phenantrolin. VIII. Plack, 346.

Naphtho-phenazin, Derivatives of. VIII. Lindenbaum, 321.

Naphtho-picric acid. VIII. Haberkant, 285.

Naphtho-quinolin. VIII. Wenk, 389.

Naphtho-quinolin-sulfonic acid. VIII. Becker, Paul, 238; Milanesi, 331; Seehagen, 367.

Naphtho-quinolins, Substituted. VIII. Plack, 346.

Naphtho-quinone, Derivatives of. VIII. Matis, 327.

- Naphtho-quinone, Halogen derivatives of. VIII. Frölich, Carl, 274.
- Naphtho-quinones and methylene derivatives. VIII. Hirsch, Hans, 294.
- Naphthol and chloro-acetone. VIII. Schrackenberger, 364.
- Naphthol-disulfonic acid. VIII. Mielcke, 331.
- Naphthols and benzoyl-chlorid in the presence of aluminium chlorid. VIII. Sauvage, 359.
- Naphthols and chloro-acetal. VIII. Giescke, 277.
- Naphthol-sulfonic acid, Dinitro derivatives of. VIII. Pluss, 346.
- Naphthol-tri-sulfonic acid. VIII. Mielcke, 331.
- Naphthoyl acetic esters. VIII. Weiss, Rudolph, 388.
- Naphthoyl-benzoyl-methane. VIII. Raeder, 349.
- Naphthoyl-ortho-benzoic acid, Derivatives of. VIII. Perutz, 344.
- Naphthoyl-piperidin. VIII. Roth, Walther, 356.
- Naphthyl-amin, Derivatives of. VIII. Fussgänger, 275.
- Naphthyl-carbizin. VIII. Hillringhaus, 293.
- Naphthyl-dithio-carbazic acid. VIII. Best, Friedrich, 241.
- Naphthyl-hydroxylamin and ketones. VIII. Scheiber, 360.
- Naphthyl-methyl-halogen-pyrazol. VIII. Bramkamp, 247.
- Naphthyl-methyl-ketones. VIII. Bartoszewics, 236; Feist, 267.
- Naphthyl-phenyl-iodonium-hydroxid, Derivatives of. VIII. Schlösser, 362.
- Naphthyl-pipecolin. VIII. Roth, Walker, 356.
- Naphthyl-sulfonic acetones. VIII. Bolm, 245.
- Nickel. V. Moissan and Ouvrard, 139. VIII. Ducru, 262; Huldschinsky, 298; Uellenberg, 381.
  - alloys. V. Guillaume, 97.
  - salts and mercuric cyanid. VIII. Papiermeister, 343.
- Nickel-ammonium-sulfate. VIII. Pfanhauser, 345.
- Nickel-arsenates. VIII. Toussaint, 380.
- Nickel-carbonyl. VIII. Mittasch, 332.
- Nickel-cyanid. VIII. Adler, 230.
- Nicotinic acid. VIII. Fils, 268; Sussdorff, 377.
- Nicotin-methylo-iodid, Oxidation of. VIII. Genequand, 277.
- Niobium compounds. VIII. Santesson, 358.
- Nitramins and nitrosamins, Nitrated, and ammonium sulfid. VIII. Oesterreich, Paul, 340.
- Nitramins, Stability in, and formation of salts from. VIII. Buchner, 250.
- Nitranilin and phosphoryl-chlorid. VIII. Strebel, 376.
- Nitranilin, Steric influences in the reaction of. VIII. Eberhard, 263.
- Nitre. V. Billon, 54.
- Nitric acid. VIII. Greittherr, 281.
  - and hydrogen iodid. VIII. Eckstädt, 263.
- Nitrils, Aromatic, and sodium. VIII. Lodter, 322.
- Nitrites. VIII. Lang, Joh., 316.
  - Electrolytic reduction of. VIII. Suler, 377.
- Nitrito-rhodanato-tetramin cobalt series. VIII. Klien, 307.
- Nitro compounds. VIII. Kissel, Hermann, 307.
  - and diazo-methane. VIII. Heinke, 289
  - Aromatic. VIII. Gaumer, 276.
  - Primary, and diazo compounds. VIII. Schmidt, Otto, 362.
- Nitro group. VIII. Koch, Ernst, 309.
- Nitro-acyl and primary amins. VIII. Boeseken, 245.
- Nitro-aldehydazones. VIII. Rüst, 357.
- Nitro-anisic acid. VIII. Schumacher, Gustav, 366.
- Nitro-anthraquinone. VIII. Weizmann, 388.
  - and phenols. VIII. Weizmann, 388.
- Nitro-benzal-hydrazin. VIII. Lublin, 323.

Nitro-benzo-nitrils, Electrolytic reduction of. VIII. Saame, 357.
Nitro - benzyl - diphenyl - itaconic acid. VIII. Küllenberg, 313.
Nitro-biphenyl. VIII. Friebel, 272.
Nitro - biuret, Derivatives of. VIII. Uhlfelder, 382.
Nitro-bromo-quinolin. VIII. Caesar, Hermann, 252.
Nitro-cellulose. VIII. Bebie, 238; Weintraub, 388.
Nitro-chloro-phenyl-para - xylyl - hydrazin. VIII. Lindenberg, Willy, 321.
Nitro-diazo-benzene and sulfur-dioxid. VIII. Kunze, 314.
Nitro - diazo - meta - xylic acid. VIII. Goldberger, 279.
Nitro-dicyan-diamidin. VIII. Uhlfelder, 382.
Nitro-diphenyl. VIII. Koch, Ad , 309.
Nitroform. VIII. Rinckenberger, 353.
Nitrogen. VIII. Wedekind, 386.
  and hydrogen in aqueous solutions Absorption-coefficients of, and influence of substances of varying degrees of dissociation on. VIII. Braun, L., 248.
  compounds. VIII. Ryn, 357.
  in organic compounds, Determination of. VIII. Moppert, 333.
  Stereochemistry of. VIII. Ryn, 357.
Nitrogen-alkyl-hydroxylamins and aromatic aldehydes. VIII. Wendler, 389.
Nitrogen - alkyl substituted aldoxims. VIII. Schultz, Erwin, 366.
Nitrogen - alkyl substituted piperidin bases and hydrogen - peroxid. VIII. Wernick, 390.
Nitrogen - alkyl substituted pyridones and phosphorus - pentabromid. VIII. Leidel, 319.
Nitrogen-alkyl substituted quinolones and phosphorus pentabromid. VIII. Leidel, 319.
Nitrogen-sulfid. VIII. Seitter, 368.
Nitrogen-tetroxid and sulfuric and nitric acids. VIII. Weintraub, 388.
Nitro-iodo-meta-xylene and polyvalent iodin, Compounds of. VIII. Talbott, 378.
Nitro - iodo - toluene, Iodoso, iodo and iodonium compounds of. VIII. Kok, 311.
Nitro-meta-xylene-sulfonic acid. VIII. Knoor, 308.
Nitro-methane and diazo-benzene. VIII. Levinstein, Herbert, 320.
Nitro-naphtho-quinone, Action of anilin, para-toluidin and naphthylamin on. VIII. Neff, 337.
Nitro-naphthylamins. VIII. Flemming, Paul, 269; Purfürst, 348.
Nitro-nitroso-naphtol. VIII. Oser, 342.
Nitro-palmitic acid. VIII. Dreden, 261.
Nitro-paraffins. VIII. Rüst, 357.
Nitro-para-phenylene-diamin, Derivatives of. VIII. Mann, Eugen, 326.
Nitro-para-tolyl-phosphinic acid. VIII. Melchiker, 329.
Nitro-phenols and chloro-acetone. VIII. Brockerhof, 248.
Nitro-phenols, Oxidation of. VIII. Czerkis, 256.
Nitro-phthalic acid. VIII. Koch, Ad., 309; Onnertz, 341; Pluss, 346.
Nitro-quinaldins, Alkyl halids of. VIII. Weil, Leopold, 387.
Nitrosaminic acid, Salts of. VIII. Lehmann, Martin, 318.
Nitrosamins. VIII. Apitzsch, 232; Strauss, Emanuel, 376.
Nitroso and diazo compounds. VIII. Lehmann, Martin, 318.
Nitroso compounds. VIII. Steinbock, H., 373.
Nitroso-benzene. VIII. Büsdorf, 251; Szolayski, 378.
  and para-toluene sulfinic acid. VIII. Rising, 353.
Nitroso-phenylene-diamin. VIII. Bertels, 241.
Nitroso-pinene. VIII. Smythe, 371; Rojahn, 355.
Nitroso-rosindone, Reaction of. VIII. Cammerloher, 252.
Nitrosyl-chlorid. VIII. Adlung, 230.

- Nitro-toluidin-sulfonic acids. VIII. Schrader, 364.
- Nitro-tolu-quinolin. VIII. Schroth, 365.
- Nitrous acid. VIII. Greittherr, 281.
  - Electrolytic reduction of. VIII. Zechlin, 394.
- Nitrous oxid. VIII. Pollak, 347.
- Nomenclature. V. Formulario, 86; Grünhut, 97.
  - Spanish. V. Landa, 121.
- Nono-dilactone. VIII. Koeppen, 310.

O

- Octyl compounds, Normal. VIII. Lipinski, 322.
- Oilcakes, Russian. VIII. Rohde, E., 355.
- Oils and fats. V. Andés, 41; Anweisung, 42; Askinson, 44; Benedikt, 50; Gill, A., 93; Halphen, 98; Hopkins, 108; Hurst, 110; Kitt, 115; Lefèvre, 124; Lewkowitsch, 126; Oilmen's sundries, 145; Oils, 145; Perl, 150; Perret, 150; Redwood, 157; Villon, 188; Wright, 197. VIII. Lewkowitsch, 320.
- Oils, Drying of. VIII. Borries, 246.
- Olefin-ketones, Diketones from. VIII. Berg, Hans, 240.
- Oleic acid and sulfur. VIII. Flieringa, 269.
- Opianic acid and cyano-acetic acid. VIII. Sienicki, 369.
- Opium, Alkaloids of. V. Leroy, 126. VIII. Athanasescu, 233; Kramers, 312.
- Optical activity. VIII. Babel, 234.
- Organic acids. V. Petersen, 151.
  - Copper salts of. VIII. Frisch, 273.
  - Estimation of, by means of iodic acid. VIII. Galimard, 275.
- Organic bases, Mercury double salts of. VIII. Volansky, 384.
- Organic chemistry. V. Altmann, 41; Béhal, 50; Beilstein, 50; Bernthsen, 51; Berthelot, 52; Cohen, 70; Dupont and Freundler, 78; Fischer, E., 84; Freire, 87; Garrett, 90; Gattermann, 90;
- Organic chemistry. [Cont'd]. George, 91; Grimaux, 96; Harz, 100; Hemmelmayr, 102; Hewitt, 104; Holleman, 107, 108; Klein, 115; Koefoed, 116; Krafft, 118; Kurzes Repetitorium, 119; Lachman, 119; Lassar-Cohn, 122; Lehmann, 125; Levy, 126; Lobry, 128; Magnanini, 131; Meijer, 135; Meyer, 137; Moureu, 140; Noyes, William, 144; Oppenheimer, 146; Pasteur, 148; Perkin and Kipping, 150; Peter, 151; Pinner, 153; Porcher, 154; Richter, 159, 160; Rideal, 160; Roscoe and Schorlemmer, 162; Sadtler, 164; Skerry, 173; Stadt, 176; Steenberg, 177; Vaubel, 187; Wachter, 189; Wade, John, 189; Wedekind, 192; Wolff, G., 197.
- Organic compounds and alkali-persulfates. VIII. Reiss, 351.
- Organic compounds and hypochlorous acid. VIII. Lauch, 317.
- Organic compounds, Electrochemical oxidation of. VIII. Mehring, 328.
- Origanum majorana. VIII. Biltz, 242.
- Ortho-aldehydic acids and cyano-acetic acid, Condensation of. VIII. Wedel, 387.
- Ortho-aldehydic acids and malo-nitril, Condensation of. VIII. Wedel, 387.
- Ortho-aldehydic acids, Condensation of, with aceto-acetic ester and ketones. VIII. Czamanski, 256.
- Ortho-aldehydo-phenoxy acids. VIII. Cajar, 252.
- Ortho-aldehydo-phenoxy derivatives. VIII. Helbig, 290.
- Ortho-amido-azo compounds. VIII. Hartmann, Ludwig, 288.
- Ortho-amido-benzaldehyde. VIII. Kobylinski, 309.
  - Condensation product from. VIII. Schmook, 363.
- Ortho-amido-benzaldoxims. VIII. Demuth, 258.

Ortho-amido-benzoic acids. VIII. Bolzano, 245.
Ortho-amido-ditolyl-amin. VIII. Wilberg, 391.
Ortho-amido-ketones. VIII. Drawert, 261.
Ortho-amido-quinolin. VIII. Hülsenbeck, 298.
Ortho-amido-salicylic acid. VIII. Zahn, Oscar, 394.
Ortho-amino-diphenyl-amin and rhodizonic acid. VIII. Duret, 262.
Ortho-ana-dimethyl-para-ethyl-quinolin. VIII. Kapelusz, 305.
Ortho-ana-dimethyl-quinaldin. VIII. Liedtke, 321.
Ortho-anisidin, Action of ether and aluminium chlorid on. VIII. Eckert, 263.
    and amido-sulfonic acid. VIII. Kownatzki, 311.
    Derivatives of. VIII. Landsberger, 316.
Ortho-azoxy-anisol. VIII. Starke, 373.
Ortho-benzo-betain. VIII. Bolzano, 245.
Ortho-bromo-ana-chloro-quinolin. VIII. Haack, 285.
Ortho-chloro-allo-meta-bromo-anilin. VIII. Kuschel, 314.
Ortho-chloro-ana-bromo-quinolin. VIII. Kuschel, 314.
Ortho-chloro-benzyl-hydrazin. VIII. Pauli, 344.
Ortho-chloro-toluene, Chloro phosphin of. VIII. Melchiker, 329.
Ortho-cresol, Action of ether and aluminium chlorid on. VIII. Eckert, 263.
Ortho-cresol and bromin. VIII. Hedenström, 289.
Ortho-cyano-phenols. VIII. Walker, 386.
Ortho-diamido-benzo-phenone. VIII. Bertram, 241.
Ortho-diamido-dibenzyl, Derivatives of. VIII. Holzinger, 297.
Ortho-diamido-diphenic acid. VIII. Reden, 350.
Ortho-diamido-stilbene, Derivatives of. VIII. Holzinger, 297.
Ortho-diamins and aromatic ortho-aldehydo acids. VIII. Heiberg, 289.
Ortho diamins, Aromatic. VIII. Bladin, 243.
Ortho-diethyl-amido-phenol and nitrous acid. VIII. Berberich, 240.
Ortho-diethyl-benzyl-amin-carboxylic acid, Reduction of. VIII. Brantl, 247.
Ortho-diketones. VIII. Backe, Arnold, 234; Kastner, 305.
Ortho-dimethyl-ana-para-quino-quinolin. VIII. Kupffender, 314.
Ortho-dimethyl-quinolin. VIII. Rosebrock, 355.
Ortho-dinitro-phenyl-methane. VIII. Bertram, 241.
Ortho-ethoxy-azo-benzene. VIII. Franz, Georg, 271.
Orthoform. VIII. Ruppert, 357.
Orthoformic ester and aromatic amins. VIII. Schwärzle, 367.
Ortho-iodo-meta-ethyl-toluene, Iodoso, iodo, and iodonium compounds of. VIII. Jahn, Max, 301.
Ortho-iodo-phenetol, Derivatives of. VIII. Hinrichsen, 294.
Ortho-iso-propyl-toluene. VIII. Sprinkmeyer, 372.
Ortho-meta-para amido-benzoic acids. VIII. Neff, 337.
Ortho-methoxy-benzaldehyde, Derivatives of. VIII. Irvine, 299.
Ortho-methyl-ana-iodo-quinolin, Iodoso, iodo, and iodonium compounds of. VIII. Beck, Hugo, 238.
Ortho-methyl-quinaldin. VIII. Kupffender, 314.
Ortho-methyl-quinolin. VIII. Lang, Walther, 316; Volger, 384.
Ortho-naphthoyl-benzoic acid, Derivatives of. VIII. Heberlein, 288.
Ortho-nitrated diazo-imids, Aromatic. VIII. Zundel, 396.
Ortho-nitro-acetophenone and benzaldehyde. VIII. Dorant, 261.
Ortho-nitro-benzimido-ether. VIII. Rappeport, 349.
Ortho-nitro-benzyl-chlorid. VIII. Dimroth, 260.

Ortho-nitro-benzyl-ortho-amido-cinnamic acid. VIII. Moeller, 332.
ho-nitro-benzyl-para-amido-azo-benzene. VIII. Paltzer, 343.
rtho-nitro-benzyl-para-amido-benzoic acid. VIII. Pohl, 347.
Ortho-nitro-cinnamo-nitril. VIII. Wolfes, 393.
Ortho-nitro-phenyl-picolyl-alkin. VIII. Roth, Emil, 356.
Ortho-oxy-benzalazin, Ethers of. VIII. Glaser, 278.
Ortho-oxy-chalkones. VIII. Neidhart, 338.
rtho-oxy-chloro-phosphin, Nitrogen derivativesof. VIII. Goldacker, 279.
rtho-oxy-diketones and mineral acids. VIII. Bischoff, 243.
Ortho-oxy-diphenyl-acetic acid. VIII. Tymieniecki, 381.
Ortho-oxy-methyl-benzaldehyde and acetophenone, acetone, and the three nitro-acetophenones. VIII. Garnier, 276.
Ortho-oxy-methyl-benzene-ortho-nitro-acetophenone. VIII. Garnier, 276.
Ortho-oxy-methyl-benzoic acid, Reduction of. VIII. Brantl, 247.
Ortho-para-azo-benzene-dicarboxylic acid. VIII. Moeller, 332.
Ortho-para-dimethyl-quinaldin. VIII. Panajotow, 343.
Ortho-para-dimethyl-quinolin. VIII. Rosebrock, 355.
Ortho-para-dimethyl-quinolin-acrylic acid. VIII. Panajotow, 343.
Ortho-para-dinitro-phenyl-para-xylyl-hydrazin. VIII. Lindenberg, Willy, 321.
Ortho-phenetidin, Derivatives of. VIII. Naphtali, 337.
Ortho-phosphins and alkyl-iodids. VIII. Kaehne, 304.
Ortho-phosphins, Aromatic. VIII. Zimmer, 395.
Ortho-phosphoric acid. VIII. Heimann, 289.
Ortho-phosphoric esters, Aromatic. VIII. Megerle, 328.
Ortho-phosphoryl-chlorid. VIII. Riegel, 352.
Ortho-propyl-benzoic acid. VIII. Gottlieb, 280.
Ortho-toluene-azo-phenetol. VIII. Franz, Georg, 271.
Ortho-toluene-sulfinic acid. VIII. Voigtländer, 384.
Ortho-toluidin, Action of ether and aluminium chlorid on. VIII. Eckert, 263.
Ort -toluido-acetic acid. VIII. Steppes, 374.
Ortho-toluido-propionic acid. VIII. Steppes, 374.
Ortho-tolyl-diketone-hydrindene, Derivatives of. VIII. Goldberg, Paul, 279.
Ortho-xylene, Chloro derivatives of. VIII. Kautz, 305.
Ortho-xylene, Halogen derivatives of. VIII. Collin, M. H., 254.
Ortho-xylenol, Bromination and oxidation of. VIII. Wolff, Walther, 393.
Ortho-xylenol, Bromo derivatives of. VIII. Rovaart, 356.
Ortho-xylenol-penta-bromid. VIII. Erggelet, 266.
Ortho-xylol-phthaloylic acid. VIII. Martens, 327.
Osazones. VIII. Wienands, 391.
Osmium. V. Brizard, 60; Joly and Vèzes, 113. VIII. Sasserath, 359.
  Reduction of nitrous compounds of. VIII. Brizard, 248.
Oxal-acetic ester, Action of ammonia and amins on. VIII. Beckh, 238.
  Benzoyl and anisoyl derivatives of. VIII. Hogrebe, 296.
Oxal-lævulinic acid. VIII. Goldstein, 279.
Oxalates. VIII. Hirsch-Gereuth, 294.
  and sesquioxids. VIII. Cohn, Ludwig, 254.

Oxalates. [Cont'd.]
  Arsenic, antimony, and bismuth compounds of. VIII. Bierbrauer, 242.
Oxalato-aquo-tri-amin-cobalt salts. VIII. Bindschedler, 243.
Oxalic acid. VIII. Akerberg, 231; Otterbein, 342.
  Arsenic, antimony, and bismuth compounds of. VIII. Bierbrauer, 242.
  in urine. VIII. Hüne, 298.
  Substituted amids of. VIII. Unger, 382.
Oxalic ester and aromatic amido compounds. VIII. Seeliger, 367.
Oxalic ester and malonic ester. VIII. Daimler, 256.
Oxalin. VIII. Atkinson, 234.
Oxamino-carvoxim. VIII. Mayrhofer, 328.
Oxazin. VIII. Barche, 235.
  dyestuffs. VIII. Klimmer, 308.
Oxazolins. VIII. Saulmann, 359
Oxazols, Aromatic. VIII. Minovici, 332.
Oxidation and reduction chains. VIII. Fredenhagen, 272.
Oxidation in the presence of acetic anhydrid and sulfuric acid. VIII. Winter, Ernst, 392.
Oxidation, Potentials of. VIII. Crotogino, 256.
Oxims. VIII. Pfeffermann, 345; Wild, 391.
  and diazo compounds. VIII. Friedemann, 273.
  Aromatic aliphatic. VIII. Wirtz, 392.
  Cyclic. VIII. Böcker, 244.
Oxy acids and carbonyl-chlorid. VIII. Mettler, 330.
Oxy acids and pyridin. VIII. Mettler, 330.
Oxy acids, Electrosyntheses from. VIII. Mend, 329.
Oxy-aldehydes, Aromatic. VIII Glimm, 278.
Oxy-amido-chloro-ketones of the aromatic series. VIII. Schmidt, Herm., 362.
Oxy-amido-esters, Aromatic. VIII. Pfyl, 345.
Oxy-amido-ketones of the aromatic series. VIII. Schmidt, Herm., 362.
Oxy-amids, Aromatic, and potassium-hypo-bromite in alkaline solution. VIII. Dam, 257.
Oxy-anthraquinone. VIII. Nauss, 337.
Oxy-anthraquinone-sulfonic acids, Halogenation of. VIII. Günther, Paul, 284.
Oxy-aryl-meconins. VIII. Winkler, 392.
Oxy-aryl-phthalids. VIII. Litterer, 322.
Oxy-azo compounds. VIII. Farmer, 267; Krause, 312; Löw-Beer, 322.
  and chloro-acetic acid. VIII. Schwabacker, 366.
  with unsaturated α-β side-chains. VIII. Bolser, 245.
Oxy-azo dyestuffs. VIII. Keppeler, 306.
Oxy-benzoic ester and alkoyl chlorids. VIII. Nagel, 336.
Oxy-carone. VIII. Baumgartel, 238.
Oxy-celluloses. VIII. Faber, Oswald, 266.
Oxy-chloro-phosphins, Aromatic, Oxy-phosphazo-compounds and esters of. VIII. Nathansohn, Simon, 337.
Oxy-chloro-phosphins, Nitrogenous derivatives of. VIII. Werbeck, 389.
Oxy-cobaltiac salts. VIII. Mylius, 336.
Oxy-ethyl-adipinic acid. VIII. Gully, 284.
Oxy-flavone. VIII. Am Rhyn, 232; Levi, 320.
  Synthesis of. VIII. Emilewicz, 264.
Oxy-fumaric acid. VIII. Niehrenheim, 339; Schoerk, 364.
Oxygen. V. Schoop, M. U., 169.
  and hydroxyl groups in alkali salts, Substitution of. VIII. Weinland, 387.
  and the fermentive activity of the living yeast-cells. VIII. Rapp, 349.

Oxygen. [Cont'd.]
  combustion method. VIII. Lehnert, 318.
  in reduction processes. VIII. Frenzel, 272.
  Molecular, Oxidizing action of. VIII. Herzog, 292.
Oxygenated bodies and acids. VIII. Kalkmann, 304.
Oxy-hæmoglobin, Crystallization of. VIII. Rouchy, 356.
Oxy-hydrogen gas, Catalysis of, by colloidal platinum. VIII. Ernst, Carl, 266.
Oxy-imido-acetic acids. VIII. Wild, 391.
Oxy-imido-ketones. VIII. Barth, Adolph, 236.
Oxy-iso-terebic acid. VIII. Friedmann, Walter, 273.
Oxy-ketones, Cryoscopic behaviour of, in naphtalene solution. VIII. Betteridge, 241.
  Unsaturated. VIII. Zeitlin, 394.
Oxy-lepidone. VIII. Dempwolff, 258.
Oxy-methylene-camphor and aceto-acetic ester. VIII. Noethlichs, 339.
Oxy-methylene-camphor, Phosphinic acid of. VIII. Flemming, Arthur, 269.
Oxy-methylene-ketones. VIII. Halbe, 286.
Oxy-naphtho-flavone. VIII. Keller, Ernst, 306.
Oxy-naphtho-quinolin. VIII. Becker, Paul, 238; Milanesi, 331; Seehagen, 367.
Oxy-phenanthrene, Synthesis of. VIII. Jaeckel, 301.
Oxy-phenyl-phthalids. VIII. Schepper, 360.
Oxy-phosphazo compounds of the aromatic series. VIII. Rehse, 350.
Oxy-phosphazo compounds of the higher homologues of the aromatic series. VIII. Securius, 367.
Oxy-phthalic acid. VIII. Pluss, 346.
Oxy-propionic acids. VIII. Aufhäuser, 234.
Oxy-purins. VIII. Weinschenk, 388.
Oxy-pyridin, Derivatives of. VIII. Feer, 267.
Oxy-pyrimidin. VIII. Bay, 238.
Oxy-quinolin. VIII. Wiske, 392.
  in animal organism. VIII. Brahm, 247.
Oxy-quinones. VIII. Moest, 332.
Oxy-styro-gallol. VIII. Slama, 370.
Oxy-tetra-methyl-pyrrolidin. VIII. Boehm, 244.
Oxy-valerianic acid, Normal. VIII. Juslin, 304.
Oxy-valero-lactones. VIII. Lepère, 319.
Ozokerit. V. Fresenius, C., 87. VIII. Seiffert, Otto, 368.
Ozo-molybdates. VIII. Nagel, Wilhelm, 336.
Ozone. V. Cowell, 72. VIII. Floderus, 270.
  Toxicology of. VIII. Bost, 246.

P

Paints, colors and varnishes. II. Hurst, 8. V. Andres, 41; Bersch, 51; Brandstätter, 60; Church, 68; Coffignier, 69; Ellis, 80; Hurst, 110; Jennison, 112; Jones, M. W., 114; Lapparent, 122; Lemoine, 125; Livache, 128; Marcucci, 132; Naudin, 142; Recipes, 157; Smith, J. C., 174.
Palladium. V. Leidié, 125.
  and carbon monoxid. VIII. Harbeck, 287.
Palmitic acid. VIII. Loebell, 322.
  Hydrazid and azid of. VIII. Dellschaft, 258.
Palo-balsam. VIII. Pätzold, 343.
Papaver Rhoeas. VIII. Wiedmann, 390.
Papaveraceae, Alkaloids of. VIII. Fischer, Richard, 269; Wintgen, 392.
Papaverin. VIII. Athanasescu, 233; Hüetlin, 297.
  Halogen alkyl compounds of. VIII. Kassner, 305.
Paper. III. Blanchet, 13. V. Cross, 73; Erfurt, 82; Herzberg, 104.
Para-amido-acetophenone and bromin. VIII. Richter, Richard, 352.

Para-amido-acetophenone and chlorin. VIII. Richter, Richard, 352.

Para-amido-acetophenone and ketones, Condensation of. VIII. Sommer, Richard, 371.

Para-amido-benzaldehydes. VIII. Kausch, 305.

Para-amido-benzoic acid, Hydrazid of. VIII. Jansen, 301.

Para-amido-benzyl-alcohol. VIII. Rosseé, 356.

Para-amido-cinnamic acid and chlorin. VIII. Fuchs, Carl, 274.

Para-amido-quinolin, Bromo derivatives of. VIII. Röttele, 354.

Para-amido-quinolin, Derivatives of. VIII. Terheggen, 378.

Para-anisidin and amido-sulfonic acid. VIII. Kownatzki, 311.

Para-benzyl-phenol, Bromo derivatives of. VIII. Walter, Wilh., 386.

Para-bromo-benzoic acid, Hydrazids and azids of. VIII. Portner, 347.

Para-bromo-phenyl-hydroxylamin. VIII. Devas, 259; Köpcke, 310.

Para-bromo-phenyl-methyl-chloro-pyrazol. VIII. Schwabe, 367.

Para-chloro-ana-bromo quinolin. VIII. Ransohoff, 349.

Para-chloro-anisol and aluminium chlorid. VIII. Rocholl, 353.

Para-chloro-anisol and phosphorus-trichlorid. VIII. Rocholl, 353.

Para-chloro-meta-bromo-anilin. VIII. Randebrock, 349.

Para-chloro-meta-nitro-quinolin. VIII. Kreuter, 312.

Para-chloro-phenol, Ortho-chloro-phosphins and ortho-oxy-chloro-phosphins of. VIII. Rocholl, 353.

Para-chloro-phenyl-hydroxylamin. VIII. Devas, 259.

Para-chloro-quinolin, Ortho- and ana-sulfonic acids of. VIII. Kreuter, 312.

Para-creosotic acid. VIII. Sieben, 369.

Para-cresol and bromin. VIII. Wagner, Franz, 385.

Para-cresol, Chloro and bromo derivatives of. VIII. Emmerich, 265.

Para-cyano-benzyl-chlorid. VIII. Moses, 333.

Para-cymyl-phenyl-ketone. VIII. Hartmann, Franz, 288.

Para-diamido-dibenzyl-sulfid. VIII. Bofinger, 245.

Para-diamido-stilbene. VIII. Mechlenburg, 328.

Para-diamino-quinone. VIII. Betsch, 241.

Para-dibromo-cymol-sulfonicacid. VIII. Langguth, 316.

Para-dibromo-iodo-benzene and polyvalent iodin. VIII. Theile, 379.

Para-dichloro-iodo-benzene, Derivatives of. VIII. Landenberger, 316.

Para-dimethyl-ethyl-iodo-benzene. VIII. Kapelusz, 305.

Para-dimethyl-indigo. VIII. Treutler, 381.

Para-dioxy-benz-hydrol, Pseudo-ketone-chlorids and pseudo-ketone-bromids of. VIII. Birschel, 243.

Para-dioxy-stilbene. VIII. Mechlenburg, 328.

Para-dioxy-tolyl-methane and bromin. VIII. Siedler, 369.

Para-diphenol. VIII. Wagner, Karl, 385.

Para-ethyl-iodo-benzene derivatives. VIII. Bergdolt, 240.

Para-ethyl-phenol, Bromo derivatives of. VIII. Reinbach, 351.

Para-ethyl-quinaldin. VIII. Krostewitz, 313.

Para-ethyl-quinolin. VIII. Proschko, 348.

Para-iodo-ortho-nitro-toluene, Derivatives of. VIII. Borchers, 245.

Para-iodo-quinolin, Iodoso, iodo, and iodonium compounds of. VIII. Möckel, 332.

Para-iodo-quinolins, Substituted. VIII. Möckel, 332.

Para-iodo-tertiary-butyl-benzene and polyvalent iodin. VIII. Rampacher, 349.

Para-iso-amyl-iodo-benzene, Iodoso, iodo, iodonium compounds of. VIII. Dammann, 257.

Para-iso-propyl-mandelic acid and phenols. VIII. Thommesen, 379.

Para-methyl-ana-oxy-quinolin. VIII. Seemen, 367.

Para-methyl-ana-oxy-quinolin-sulfonic acid. VIII. Seemen, 367.

Para-methylene series, Cyclic diketonic esters of. VIII. Werdermann, 389.

Para-methyl-ortho-benzyl-benzoic acid. VIII. Aussum, 234.

Para-methyl-quinolin. VIII. Fischer, Otto, 269.

Para-nitro-benzaldehydes and lutidin. VIII. Knick, 308.

Para-nitro-benzaldehydes and picolin. VIII Knick, 308.

Para-nitro-benz-hydroxamic-chlorids, Decomposition products of. VIII. Springmann, 372.

Para-nitro-benzyl-chlorid. VIII. Dimroth, 260.

Para-nitro-benzylidene-quinaldin. VIII. Bulach, 251.

Para-nitro-benzyl-nitramin. VIII. Hilland, 293.

Para-nitro-phenyl-hydrazin. VIII. Hyde, 298.

Para-nitro-quinolin, Bromo derivatives of. VIII. Röttele, 354.

Para-nitroso-dimethyl-anilin, Formation of salts of. VIII. Dilthey, 260.

Para-nitroso-toluene. VIII. Szolayski, 378.

Para-oxy-benzaldehyde-phenyl-hydrazone. VIII. Amme, 232.

Para-oxy-benzoic acid and alkali-persulfate. VIII. Rücker, 356.

Para-oxy-benzyl alcohol, Tri-bromo derivatives of. VIII. Daecke, 256.

Para-oxy-cinnamic acid and bromin. VIII. Leisse, 319.

Para-oxy-cinnamic acid and chlorin. VIII. Fuchs, Carl, 274.

Para-oxy-diphenyl, Derivatives of. VIII. Wittenstein, 392.

Para-oxy-diphenyl-amin, Keto-chlorids and keto-bromids from. VIII. Klappert, 307.

Para-oxy-diphenyl-acetic acid. VIII. Tymieniecki, 381.

Para-oxy-meta-dibromo-benzaldehyde. VIII. Kromschröder, 313.

Para-oxy-phenyl-acetic acid, Halogen derivatives of. VIII. Lange, Wilhelm, 316.

Para-oxy-quinolin. VIII. Gentzen, 277.
 Derivatives of. VIII. Strauss, Heinrich, 376.

Para-para-benzo-phenone-dicarboxylic acid. VIII. Clauss, 254.

Para-phenylene-diamin and ortho-aldehydic acids. VIII. Elzanowski, 264.

Para-phenylene-diamins and thionyl-chlorid. VIII. Francke, 271.

Para-propyl-iodo-benzene and polyvalent iodin, Compounds from. VIII. Sekerl, 367.

Para-saccharin. VIII. Nägeli, 336.

Para-tertiary-butyl-phenol, Bromo derivatives of. VIII. Reitz, 351.

Para-tolenyl-dioxy-tetrazolic acid. VIII. Hess, Franz, 292.

Para-toluene-sulfinic acid. VIII. Hälssig, 286.
 and formaldehyde. VIII. Nake, 336.
 Hydroxylamin derivatives of. VIII. Nake, 336.

Para-toluic aldehyde and acetophenone. VIII. Heymann, 293.

Para-toluido-acetic acid. VIII. Steppes, 374.

Para-tolu-quino-phthalone. VIII. Simon, Edgar, 370.

Para-tolu-quinolin and sulfur halids. VIII. Ekeley, 264.

Para-toluyl-aceto-nitril. VIII. Seidel, Otto, 368.

Para-toluyl-carbinol. VIII. Puls, 348.

Para-toluyl-hydrazin-acetic ester. VIII. Rohrmann, 355.

Para-toluyl-methyl-phenol-ethers. VIII. Puls, 348.

Para-toluyl-ortho-benzoic acid, Derivatives of. VIII. Kern, 306.

Para-toluyl-para-benzoic acid. VIII. Clauss, 254.
Para-tolyl-aldehydes. VIII. Bärenfänger, 235.
Para-tolyl-azin. VIII. Propfe, 348.
Para-tolyl-hydroxamic acid, Ethyl and methyl esters of. VIII. Kilp, Aug., 306.
Para-tolyl-methyl-chloro-pyrazol. VIII. Sudendorf, 377.
Para-tolyl-naphthyl-amin, Derivatives of. VIII. Rübel, 356.
Para-tolyl-phenyl-imid-azols. VIII. Hossbach, 297.
Para - tolyl - pseudo - azimido - quinolin. VIII. Danner, 257.
Para-tolyl-pyridazin. VIII. Katzenellenbogen, 305.
Para-tri-anisyl-stibin. VIII. Löloff, 322.
Para-tri-phenyl-stibin. VIII. Löloff, 322.
Para-tuluic acid. VIII. Moszcyc, 333.
Para-tungstates. VIII. Hallopeau, 287.
Para-xylene. VIII. Lehnert, 318.
  Derivatives of. VIII. Ellenberger, 264; Kipping, 306.
Para-xylidin, Derivatives of. VIII. Ellenberger, 264.
Para-xylyl-hydrazin. VIII. Lindenberg, Willy, 321.
Para-xylyl-phenyl-ketone. VIII. Larsen, 317.
Para - xylylene - bromid and alkaloids. VIII. Manoukian, 326.
Para-xylylene-bromid and amins. VIII. Manoukian, 326.
Pasta guarana. VIII. Kirmsse, 307.
Patents, Chemical. V. Huntington, 110.
Patina. V. Vanino, 187.
Peat. VIII. Feilitzen, 267; Lenecek, 319.
Penta-chloro-phenates. VIII. Jambon, 301.
Penta-chloro-phenol. VIII. Jambon, 301.
Pentacyclic ketones. VIII. Rath, 350.
Penta-glycol. VIII. Apel, 232.
Penta-methylene-dicarboxylic acid, Hydrazid of. VIII. Pringsheim, 348.
Pentane-tetra-carboxylic acid, Hydrazids and azids of. VIII. Grandel, 281.
Pentantrione. VIII. Baschall, 236.
Penta-phenyl-cyclo-pentane, Synthesis of. VIII. Keller, Bruno, 306.
Pentosanes. VIII. Rimbach, 353; Schöne, 364.
Pentoses. VIII. Rimbach, 353.
Pepper. VIII. Bauer, Friedr., 237.
Pepsin. VIII. Korn, 311.
Peptones. V. Paal, 147.
  from egg albumen. VIII. Merkel, 329.
Perfumes. (*See also* Cosmetics; Essential oils.) II. Garance, 7. V. Charabot, 66; Fuencarral, 89; Jaubert, 111; Klimont, 116; Parry, 148; Perret, 150; Piesse, 152; Tardif, 180.
Perhaloids. VIII. Samtleben, 358.
Periodates, Crystallography of. VIII. Eakle, 262.
Per-iodic acid. VIII. Ihre, 299.
Permanganic molybdates. VIII. Samelson, 358.
Peroxids, Iodometry of. VIII. Schaumann, 359.
Perselenic acid. VIII. Mengers, 329.
Persulfates. VIII. Kohen, 310.
  Alkaline. VIII. Mourgues, 334.
Petroleum. V. Aisinman, 39; Blazy, 55; Coucou, 72; Eger, 79; Fresenius, C., 87; Henderson, 102; Neuberger, 142; Ragosin, 156; Thomson, 182. VII. Naphta, 226. VIII. Jacunski, 301; Lehmann, Theodor, 318.
Pharmaceutical chemistry. I. Nederlandsch, 4. II. Cesaris, 6; Waldheim, 11. III. André-Pontier, 12; Berendes, 12; Boriani, 13; Greco, 16; Hoffmann, 16; Leclerc, 17; Peters, 20. V. Alessandri, 39; Arnold, 43; Attfield, 44; Bartley, 48; Biechele, 53; Bonet, 57; Crolas, 72; Dieterich, 75; Dupuy, 79; Fischer, 83; Freire, 87; Gérard, 91; Gilkinet, 93; Glaser, 94; Herz-

Pharmaceutical chemistry. [Cont'd]. feld, H., 104; Holdermann, 107; Jehn, 112; Keller, 115; Lajoux and Grandval, 120; Lamanna, 120; Levi, 126; Mas y Guindal, 134; Moor, 139; Pearmain, 149; Pesci, 151; Pollacci, 153; Prunier, 156; Riassunto, 159; Rijn, Wilhelm, 160; Sadtler and Coblentz, 164; Schmidt, E., 168; Thompson, 181; Thoms, H., 182; Winckler, 195. VII. Bollettino, 221; Nederlandsche Tijdschrift, 226; Prévoyance, 227; Revue des produits, 227.
Pharmacy, History of. VIII. Lafourcade, 315; Leclair, 318.
Phases. V. Duhem, 77; Roozeboom, 162.
Phellandrene. VIII. Lauffer, 317.
Phellandrium aquaticum. VIII. Bauer, Carl, 237.
Phenanthrene. VIII. Kunz, 314.
  Derivatives of. VIII. Frey, 272; Löwenstein, 323; Ney, 338; Neuhoff, 338; Wack, 385.
  Sulfonic acids and oxy derivatives of. VIII. Klein, 307.
Phenanthrene-quinone. VIII. Perlin, 344.
  and acetic anhydrids. VIII. Perlin, 344.
  and phenols. VIII. Weizmann, 388.
Phenanthrol. VIII. Heil, 289.
Phenanthrol-quinones. VIII. Schwabacher, 367.
Phenol and ortho- and para-tolyl-thiocarbimids in the presence of aluminium chlorid. VIII. Bryan, 250.
Phenol poisoning. VIII. Krauss, 312.
Phenol-bromin. V. Anselmine, 42.
Phenol-ethers, Unsaturated. VIII. Otte, 342.
Phenol-phthalein. VIII. Burckhardt, 251.
Phenolic acids, Lactones of. VIII. Cramer, 255.
Phenolic ethers of carbonic, ortho-phosphoric, and glycolic acids. VIII. Morel, 333.
Phenols. VIII. Richter, Woldemar, 352; Schümann, 365; Schumann, Kurt, 366.
  Acetylated. VIII. Ulrich, Harry, 382.
  and bromo-phenols, Oxidation products of. VIII. Broicher, 249.
  and bromo-propione-acetal. VIII. Kissel, Fritz, 307.
  and chloro-acetal. VIII. Schmidt, Hugo, 362.
  and mono- and dichloro-acetal. VIII. Hesse, 292.
  Dihydroxylic and acetone, Condensation products of. VIII. Steinbuch, 373.
  Pyrogenic decomposition of. VIII. Müller, Eberhard, 334.
  Synthesis of, by the Friedel-Craft reaction. VIII. Behn, Richard, 239.
  Trisubstituted, and ethyl-nitrites. VIII. Eichwede, 264.
Pheno-safranin. VIII. Kramer, 312.
Phenyl-acetamid and acetic anhydrid. VIII. Welsch, 389.
Phenyl-acetamid and formic acid. VIII. Welsch, 389.
Phenyl-acetic acid. VIII. Braren, 247.
  and aldehydes. VIII. Wetzlich, 390.
  Hydrazid of. VIII. Boetzeten, 245.
Phenyl-acetimido-ester and hydrazin. VIII. Goebel, 278.
Phenyl-acetyl-acetophenone. VIII. Grotowsky, 283.
Phenyl-acridin. VIII. Nicolaysen, 338.
  Oxidation of, by potassic permanganate in acid solution. VIII. Böhm, Ludwig, 244.
  series. VIII. Weintraub, 388.
Phenyl-acridin-methyl-chlorid. VIII. Gloz, 278.
Phenyl-adipinic acid. VIII. Voigt, Julius, 384.
Phenyl-alkyl-chloro-pyrazol. VIII. Greiss, 281.
Phenyl-amido acetic acid and amyl-alcohol. VIII. Pfeiffer, 345.
Phenyl-amido-acetic acid and sodium VIII. Pfeiffer, 345.

Phenyl-anilido-acetic acid, Derivatives of. VIII. Bruhn, Bruno, 249.
Phenyl-anilido-aceto-nitril. VIII. Welsch, 389.
Phenyl-aticonic acid. VIII. Breslauer, 248.
Phenyl-benzyl-ethers, Halogenated. VIII. Hagenburger, 286.
Phenyl-carbaminic acid, Hydrazid of. VIII. Hofman, 296.
Phenyl-cinnamenyl-acrylic acid, Dibromid of. VIII. Rössner, 354.
Phenyl-croton-lactone. VIII. Knell, 308.
Phenyl-cyano-amid. VIII. Wedelstädt, 387.
  and hydroxylamin. VIII. Laske, 317.
Phenyl-cyclo-heptane. VIII. Fischer, Karl, 269.
Phenyl-cyclo-hexane. VIII. Lessing, 320.
Phenyl-dibenzoyl-glutaric ester, Saponification of. VIII. Robertson, 353.
Phenylene-diamins and dibromo-naphthoquinone. VIII. Lindenbaum, 321.
Phenylene-oxamid. VIII. Dörbecker, 260.
Phenyl-glutaric acid and benzaldehyde. VIII. Merckens, 329.
Phenyl-glyceric acid. VIII. Mayer, 327.
Phenyl-glycin-ortho-carboxylic acid. VIII. Weissbrenner, 388.
Phenyl-hydrazin, Action of chloro-picrin, acetone-chloroform and acetone-chloral on. VIII. Steinbuch, 373.
Phenyl-hydrazin and benzal-chlorid. VIII. Borosini, 245.
Phenyl-hydrazin and benzo-tri-chlorid. VIII. Borosini, 245.
Phenyl-hydrazin and benzyl-chlorid. VIII. Borosini, 245.
Phenyl-hydrazin and carbonic acid. VIII. Labhardt, 315.
Phenyl-hydrazin and metallic salts. VIII. Moitessier, 332.
Phenyl-hydrazin and palmityl- and stearyl-chlorids. VIII. Ortmeyer, 341.
Phenyl-hydrazin and tri-chloro-acetic-ethyl-ester. VIII. Borosini, 245.
Phenyl-hydrazin, Cyanogen addition products from. VIII. Bladin, 243.
Phenyl-hydrazin derivatives, Unsymmetrical. VIII. Heberlein, 289.
Phenyl-hydrazins, Sulfonation of. VIII. Gallinek, 275.
Phenyl-hydrazones. VIII. Pfeffermann, 345; Schlenk, 361.
Phenyl-hydroxylamin. VIII. Devas, 259; Lagutt, 315; Ter-Sarkissjan, 378; Tschirner, 381.
  Action of alkalies and oxidizing agents on. VIII. Brady, 246.
  and para-toluene-sulfinic acid. VIII. Rising, 353.
Phenyl-imino-carboxylic ester and hydrogen cyanid. VIII. Kirnberger, 307.
Phenyl-indone-acetic acid. VIII. Vieweg, 383.
Phenyl-iso-butyric acid. VIII. Kestner, 306.
Phenyl-iso-crotonic acid and hydrogen chlorid. VIII. Hadorff, 285.
Phenyl-iso-crotonic ester, Nitration of. VIII. Haeckel, 285.
Phenyl-iso-cyanate and oxyacids. VIII. Lambling, 315.
Phenyl-iso-cyanates and thiamids. VIII. Berthoud, 241.
Phenyl-malonic ester. VIII. Goldstein, 279.
Phenyl-methyl-chloro-pyrazol. VIII. Pasternack, 343.
Phenyl-methyl-halogen-pyrazols. VIII. Behn, 239; Voss, 385.
Phenyl-methyl-piperidin. VIII. Müller, Helmuth, 335.
Phenyl-methyl-pyrazolone. VIII. Uellenberg, 381.
  and concentrated nitric acid. VIII. Bran, 247.
  and oxy-benzaldehydes. VIII. Ernst, Richard, 266.

Phenyl-naphthalene, Derivatives of. VIII. Gunther, Oscar, 284.
Phenyl-naphtho-acridin series. VIII. Racovitza, 349.
Phenyl-naphtho-cinchoninic acid. VIII. Hollaender, 296; Traub, 381.
Phenyl-nitro-ethylene, Derivatives of. VIII. Haeckel, 285.
Phenyl-ortho-stilbazol. VIII. Dehnel, 258.
Phenyl-oxy-pyrazolone. VIII. Mitscherlich, 332.
Phenyl-paraconic acid. VIII. Jehl, 302.
Phenyl-para-methyl-cinchoninic acid. VIII. Köhler, Robert, 309.
Phenyl-para-tolyl-chloro-phosphin. VIII. Hess, Heinrich, 292.
Phenyl-para-tolyl-oxazol. VIII. Gotsch, 280.
Phenyl-pentenic acid. VIII. Bauer, Alexander, 237.
Phenyl-picolyl-alkin. VIII. Bach, 234; Roth, Emil, 356.
Phenyl-propargylic aldehyde. VIII. Driessen, 262; Weigand, 387.
Phenyl-propiolic acid. VIII. Lanser, 316.
Phenyl-propionic acid, Hydrazid and azid of. VIII. Jordan, 303.
Phenyl-pyrazol. VIII. Hachumian, 285.
Phenyl-pyrazolone and phosphorus-oxychlorid. VIII. Rossmann, 350.
Phenyl-pyrimidin. VIII. Schlenker, 361.
Phenyl-quinolin. VIII. Nauss, 337.
Phenyl-quinolin-carboxylic acid. VIII. Jablonski, Siegfried, 300.
Phenyl-salicylate and alkali persulfates. VIII. Duntze, 262.
Phenyl-selenic acid. VIII. Stoecker, 375.
Phenyl-stilbazol. VIII. Dehnel, 258.
Phenyl-succinic acid, Electrolysis of the ester salts of. VIII. Waldenberger, 386.
Phenyl-succinic acid, Ester acids and anilic acids of. VIII. Hahn. Carl, 286.
Phenyl-sulfo-acetic acid, Sulfone compounds from. VIII. Claësson, 253.
Phloro-glucin-ethers. VIII. Wolf, 393.
Phosphamin compounds, Aromatic. VIII. Arend, 232.
Phosphate glasses. VIII. Inwald, 299.
Phosphates. V. Minozzi, 138. VIII. Schucht, 365.
Phosphids, Metallic. V. Granger, 96. VIII. Maronneau, 327.
Phosphins, Tertiary aromatic. VIII. Krahe, 312.
Phosphoric acid. V. Merz, 136.
    Esters of. V. Cavallier, 66.
Phosphorus. V. Merz, 136. VIII. Nattermann, 337.
    atom, Unsymmetrical. VIII. Hess, Heinrich, 292.
    in iron and iron ores. VIII. Motz, 333.
    Iodometry of. VIII. Finck, 268.
    Organic nitrogen compounds of. VIII. Wennekes, 389.
    Oxygen compounds of. VIII. Gamel, 275.
Phosphorus-antimony-arsenic group. VIII. Neumann, Richard, 338.
Phosphorus-suboxid VIII. Pitsch, 346.
Phosphoryl-chlorid and primary and secondary amins. VIII. Ratzlaff, 350
Phospho-vanadic molybdates. VIII. Jacoby, Heinrich, 300.
Photochemistry. V. Friedländer, 88; Grebe, 96; Lainer, 120; Zucker, 199. VIII. Luther, 324.
Photographic chemistry. III. Colson, 14; Drecker, 14; Mémoires, 18. V. Clerc, 69; Colson, 71; Lainer, 120; Liesegang, 127; Mathet, 134; Namias, 141; Niewenglowski, 143; Townsend, 180; Valenta, 186.
Phthalazones. VIII. Wölbling, 393.
    Derivatives of. VIII. Paul, Victor, 344
Phthalic acid, Brominated. VIII. Schultz, B., 366.
Phthalic acid, Derivatives of. VIII. Leupold, 320.
Phthalic acid, Hydrazids and azids of. VIII. Davidis, 257.

Phthalic-aldehydic acid and benzyl-cyanid, Condensation of. VIII. Wrotnowski, 394.
Phthalic-aldehydic acid and para-nitro-benzyl-cyanid, Condensation of. VIII. Wrotnowski, 394.
Phthalic-aldehydic acid and phenyl-methyl- pyrazolone, Condensation of. VIII. Wrotnowski, 394.
Phthalic anhydrid and sodium-tri-carballylate. VIII. Gottsche, 280.
Phthalimids. VIII. Sachs, Franz, 357.
Phthaloyl-phthalic acid. VIII. Martens, 327.
Phthalyl-dichlorid and sodium-benzoyl-aceticester. VIII. Hüthig, 298.
Phthalyl-hydroxylamin. VIII. Brockmann, 249.
Phthalyl-phenyl-iso-crotonic acid. VIII. Tischbein, 380.
Physical chemistry. I. Zeitschrift, 5. II. Castell-Evans, 6; Sidersky, 10. III. Gerland, 15; Ostwald, 19. V. Aimé, 39; Arndt, 42; Bakhuis-Roozeboom, 47; Bodländer, 56; Bodenstein, 56; Bouant, 59; Boyle, 59; Bräuer, 60; Burbury, 63; Cohen, 70; Delépine, 74; Deventer, 75; Duhem, 77; Gay Lussac, 90; Herz, 103; Höber, 105; Hoff, 106; Jones, H., 113; Küster, 119; Leduc, A., 124; Lehfeldt, 125; Martin and Rockwell, 133; Morgan, 140; Murray, 141; Noyes, 144; Orschiedt, 146; Ostwald and Luther, 147; Puschl, 156; Raoult, 157; Reychler, 158; Rudolphi, 163; Travers, 184; Waals, 189; Walker, 190; Weinberger, 192.
Physiological chemistry. III. Hüfner 17. V. Arthus, 43; Atwater and Benedict, 45; Atwater and Langworthy, 45; Atwater and Rosa, 45; Atwater and Woods, 46; Austin, 46; Bottazzi, 58; Brasch, 60; Bunge, 63; Chittenden, 67; Halliburton, 98; Hammarsten, 98; Hoppe-Seyler, 108; Hüfner, 109; Jackson, 111; Martz, 133; Pollacci, 153; Renzone, 158; Salkowski, 164; Schultz, F. N., 170. VII. Beiträge, 220.
Phytosterin. VIII. Winter, Curt, 392.
Picea excelsa, Seeds of. VIII. Rongger, 355.
Picolin and aldehydes. VIII. Feist, 267.
Picolin and bromin. VIII. Dehnel, 258.
Picolin and cuminol. VIII. Backe, Paul, 234.
Picolinic acid. VIII Drexler, 261.
  Hydrazid of. VIII. Pugin, 348.
Picramid. VIII. Hagenbach, 286.
Picric acid. V. Robert, 161. VIII. Kärger, 304.
Picro-toxin. VIII. Bruger, 249.
Picryl-para-xylyl-hydrazin. VIII. Lindenberg, Willy, 321.
Pinacolin. VIII. Lonnes, 323.
Pinacolin-nitrimin. VIII. Weil, Alb., 387.
Pinacones. VIII. Schmitz, 363.
Pinene. VIII. Hoffmann, Heinrich, 295.
Pinol. VIII. Sieverts, 369.
Pinonic acid. VIII. Hoffmann, Heinrich, 295.
Piperazins. VIII. Brandes, 247.
Piperidin and amido-sulfonic acid. VIII. Kubaleck, 277.
Piperidin and chloro-acetal. VIII. Schneider, Georg, 363.
Piperidin and dichloro-acetal, and methylene-chlorid. VIII. Klose, 308.
Piperidin and pyro-phosphoryl. VIII. Schütte, Wenzel, 365.
Piperidin, Oxy-chloro-phosphins of. VIII. Kahnemann, 304.
Piperidin series. VIII. Groschuff, 282; Hohenemser, 296; Marcuse, 327.
Piperidin, Sulfo-chloro-phosphins of. VIII. Steinkopf, 374.
Piperonal, Derivatives of. VIII. Jandrier, 301.

laster. V. Hoff, 106.
latini-oxalic acid. VIII. Grebe, 281.
tinum. I. Howe, 3. II. Fremy, 7. VIII. Ropp, Alex., 355.
  and carbon monoxid. VIII. Harbeck, 287.
  bases containing ethyl-amin. VIII. Wolffram, 393.
  Iodometry of. VIII. Spiess, 372.
  pseudo-catalytic activation of. VIII. Wöhler, 393.
latinous chlorid and anilin. VIII. Chydenius, 253.
ous sulfite and anilin. VIII. Chy denius, 252.
latoso-oxalic acid. VIII. Grebe, 281.
lybasic acids, Esters of. VIII. Neelmeier, 337.
lyborates. VIII. Steinfels, 374.
halite. VIII. Basch, 237.
merization of organic liquids. VIII. Baud, 237.
ethylene-diimins. VIII. Esch, 266.
Polymethylene-imins. VIII. Esch, 266.
Polyphenylene - sulfid. VIII. Sundheimer, 377.
Poly oil. VIII. Wegener, 387.
Polysaccharids. VIII. Fonzes-Diacon, 270.
Polythionates VIII. Gutmann, 284.
Potash. V. Lunge, 130.
  and cobaltous hydroxid. VIII. Döring, 261.
  and halogens. VIII. Döring, 261.
  industry. V. Paymann, 149.
  salts. V. Rideal, 160.
Potassammonium and metalloids. VIII. Hugot, 298.
Potassic acetate in acetic acid, Electrolytic behavior of. VIII. Völlmer, 383.
Potassium. V. Billon, 54.
  Hypochlorite. VIII. Melville, 329.
  salts of amido acids and alkyl iodids. VIII. Hardt, 288.
Potassium-bismuthate and hydro-fluoric acid. VIII. Lauenstein, 317.
Potassium-chlorid. VIII. Jaquerod, 302.
Potassium - ferricyanid. VIII. Hoffmann, Alf., 295.
Potassium-hydroxid. VIII. Jaquerod. 302.
Potassium-iodid. VIII. Hoffmann, Alf., 295.
Potassium - persulfate and potassium-iodid. VIII. Price, 348.
Potato plant, Ashes of. VIII. Daszewski, 257.
Praseodymium, Decomposition of. VIII. Böhm, Richard, 244.
Propene-tetra-carboxylic ester. VIII. Jahn, Carl, 301; Weiss, Arno, 388.
Propionic acid. VIII. Bailey, 235; Hille, 293.
Propyl-aldehyde. VIII. Rechnitz, 350.
Propyl-aldehyde acetal, Derivatives of. VIII. Emmerich, 264.
Propylene, Liquid. VIII. Degner, 258.
Propylene - diamin. VIII. Baumann, Georg, 238; Fröhlich, A., 274; Keil, 305.
Propylene - diamin metal salts. VIII. Pastor, 344.
Propyl-pseudo-cumene. VIII. Damm, 257.
Propyl-quinolin, Halogen derivatives of. VIII. Collischonn, 255.
Propylidene-azin. VIII. Rechnitz, 350.
Propyrin. VIII. Rossmann, 350.
Proteids. V. Mallet, 131.
Proteins. V. Ruppel, 163.
Prozane, Derivatives of. VIII. Osborne, Wilhelm, 342.
Pseudo-acids. VIII. Barth, Adolph, 236.
  and ammonia. VIII. Dollfus, 261.
Pseudo-ammonium bases. VIII. Kalb, 304.
Pseudo-carbamids. VIII. Menne, 329.
Pseudo-cumene and ethylene. VIII. Bartels, 236.
Pseudo-cumene, Arsenic derivatives of. VIII. Oberg, 340.
Pseudo-cumene, Derivatives of. VIII. Neumann, Richard, 338.
Pseudo-cumene-sulfonic acid and bromin. VIII. Pathe, 344.

Pseudo-cumenol, Ortho-chloro-phosphins of. VIII. Jedamski, 302.
Pseudo-cumenol, Ortho-oxy-chlorophosphins of. VIII. Jedamski, 302.
Pseudo-cumenol-tri-bromid. VIII. Reichel, 350.
  and bases. VIII. Wehr, 387.
  Oxidation product of. VIII. Ebner, 263.
Pseudo-cumidin, Action of ether and aluminium-chlorid on. VIII. Broichsitter, 249.
Pseudo-cumidin and amido-sulfonic acid. VIII. Hubaleck, 297.
Pseudo-cumidin-sulfonic acid. VIII. Ledderboge, 318.
Pseudo-cumyl-phenyl-phosphin. VIII. Hess, Heinrich, 292.
Pseudo-cumyl-phosphinic acid. Derivatives of. VIII. Gartenschläger, 276.
Pseudo-nitrol. VIII. Stock, 375.
Pseudo-phenols. VIII. Huber, 297; Müller, Otto, 335; Richter, Woldemar, 352; Schümann, 365; Schumann, Kurt, 366; Stephani, 374.
  and organic bases. VIII. Müller, Karl, 335
  Oxidized. VIII. Sigel, 369.
Pseudo-phenyl-acetic acid. VIII. Kurtz, 314.
Ptomains. V. Savoire, 167.
Pulegenic acid. VIII. Meyer, Julius, 331.
  Oxidation products of. VIII. Sonneborn, Hermann, 371.
Pulegone. VIII. Roeder, 354; Schauwecker, 360; Wicke, 390.
  series. VIII. Collmann, 255.
Pulegone-malonic acid, Dilactone of. VIII. König, Wilhelm, 310.
Pulegonic acid. VIII. Kirchhof, 307; Lüdde, 324.
Purin compounds. VIII. Jessel, 302.
Purin group, Amino compounds in. VIII. Lüders, 324.
Putty. V. Lehner, 125.
Pyrane. VIII. Wilcke, 391.
Pyrazin. VIII. Backe, Arnold, 234; Brandes, 247; Detert, 259.
  Phenyl derivatives of. VIII. Müller, Friedrich, 335.
  series, Synthesis in the. VIII. Braunmüller, 248.
Pyrazin-tri-carboxylic acid. VIII. Detert, 259.
Pyrazol. VIII. Hauberrisser, 288.
  group. VIII. Meder, 328.
Pyrazolin, Derivatives of. VIII. Zinkeisen, 395.
Pyrazolin-tri-carboxylic ester, Conversion of, into tri-amino-pyrazolin. VIII. Bourcart, 246.
Pyrazolone. VIII. Licinsky, 321.
  Derivatives of. VIII. Himmelbauer, 293.
Pyrazolone-acetic acid, Hydrazid of. VIII. Kufferath, 314.
Pyrazol-tri-carboxylic acid, Hydrazid of. VIII. Heynemann, 293.
Pyridazin. VIII. Poppenberg, 347.
Pyridin. VIII. Merl, 329; Metzger, Sigmund, 330.
  derivatives, Methyl groups in. VIII. Heyl, Fritz, 292.
  derivatives obtained by means of methyl-aceto-acetic ester. VIII. Sachs, Arthur, 357.
Pyridin series. VIII. Frese, 272.
  Amins in. VIII. Mohr, E., 332.
  Synthesis in. VIII. Fries, Alf., 273.
Pyridins, Aromatic. VIII. Heidrich, 289.
Pyridone and phosphorus-penta-chlorid. VIII. Jaeger, 301.
Pyridones, Substituted. VIII. Rigaud, 352.
Pyridoyl-acetic ester. VIII. Bay, 238; Donchi, 261.
Pyridoyl-propionic ester. VIII. Bay, 238.
Pyridyl-mercaptan. VIII. Klemm, 307.
Pyrimidin. VIII. Rappeport, 349.
  Derivatives of. VIII. Byk, 252.
  derivatives, Synthesis of. VIII. Schwarz, Rud., 367.

- catechin - methyl - ketone, Alkyl ethers of. VIII. Bock, 244.
techol-acetic acid. VIII. Ludewig, Hans, 324.
mical Daniel chains. VIII. Suchy, 377.
mucic acid, Hydrazid of. VIII. Leimbach, 319.
one derivatives from acetylated pyrazolin. VIII. Schröder, Heinrich, 364.
sphates. VIII. Pahl, 343.
sphoryl-chlorid and phenols. VIII. Riegel
-tartaric acid ar
Lagermarck, 315.
echny. V. Bujard, 62.
VIII. Cousin, 255; Lange, Heinrich, 316; Long, 323; Steinmann, 374; Widmer, 390.
. VIII. 'Schlink, 362.
-carboxylic acid, Synthesis of. II. Ettlinger, 266.
VIII. Bufleb, 251.
uvic acid. VIII. Coos, 255.
and ammonium - pyruvate. VIII. Jong, 303.

Q

Quinaldyl-stilbazol. VIII. Grabski, 280.
Quinazolin compounds. VIII. Hanschke, 287.
Quinazolin derivatives. VIII. Grünbaum, 283.
Quinazolin series. VIII. Kromschröder, 313.
Quincy seed oil. VIII. Herrmann, R., 291.
Quinhydrone. V. Valeur, 186.
Quinin. V. Scavia, 167.
Quinolin. VIII. Gadebusch, 275; Klitzsch, 308; Metzger, Sigmund, 330.
  Derivatives of. VIII. Haass, 285; Ihlder, 299; Knueppel, 309.
  Halogen derivatives of. VIII. Evans, 266.
  series, Substitution in. VIII. Caesar, Hermann, 252.
Quinolin-carboxylic acid. VIII. Tunks, 381.
  Alkyl derivatives of. VIII. Lubberger, 323.
Quinolin-ethyl-bromid. VIII. Graemer, 281.
Quinolinic acid, Hydroxylamin derivatives of. VIII. Preuss, 348.
Quinolinic series, Hydrazins in. VIII. Chain, 253.
Quinols. VIII. Alioth, 231; Dallwig, 256.
Quinolyl-hydrazin. VIII. Meyer, E., 330.
-ne, Addition of alcohols to. VIII. Bückel, 250.
ne and amido-acetic acid. VIII. Barin, 235.
ne-ana-para-methyl-quinolin-carboxylic acid. VIII. Neander, 337.
ne-ana-para-phenyl-quinolin-carboxylic acid. VIII. Neander, 337.
Quinone-imid dyestuffs. VIII. Fussgänger, 275.
Quinone-iso-quinolin. VIII. Trapp, 380.
Quinone-oxims. VIII. Facchinetti, 267; Farmer, 267; Silva, 370.
Quinones. V. Valeur, 186. VIII. Alioth, 231.
  Action of acetic anhydrid and sulfuric acid on. VIII. Winter, Ernst, 392.
  and amido-guanidin. VIII. Barlow, 236.
  and secondary alcohols. VIII. Klopfer, 308.
  and semi-carbazid. VIII. Barlow, 236.
Quino-phthalin. VIII. Lange, Otto, 316.
Quino-phthalone. VIII. Lange, Otto, 316.
Quino-toxin. VIII. Fussenegger, 275.

R

Racemic compounds. VIII. Schlossberg, Israel, 362.
Racemisation, Partial. VIII. Doctor 260; Kramers, 312.

Radicals, Unsaturated. VIII. Henrich, 291.
Radioactive substances. VIII. Henning, 290.
Radiography. V. Giesel, 92; Röntgen, 162.
Rare earths. V. Boehm, 56; Herzfeld and Korn, 104; Truchot, 185; Urbain; 186. VIII. Kraus, 312; Marc, Robert, 326.
Recipes, Chemical. V. Chemische Recepte, 67; Engelhardt, A., 81; Oilmen's recipes, 145.
Red clover seeds. VIII. Wübbena, 394.
Refrigeration. (*See* Cold, Production of).
Rennet. VIII. Lörcher, 322.
Resins. V. Cordemoy, 72; Dieterich, 75; Rabaté, 156; Tschirsch, 185; Weigel, 192. VIII. Westerberg, 390.
Resorcinol-methyl-ether and nitrous acid. VIII. Rhodius, 351.
Resorcyl-aldehydes. VIII. Bärenfänger, 235.
  Nitration of. VIII. Schütz, 365.
Retene and derivatives. VIII. Ekstrand, 264.
Rhodium. I. Palmaer, 4. V. Leidié, 125.
Ring condensations. VIII. Maier, 325.
Rochelle salt. VIII. Leeuwen, 318.
Rosindulin. VIII. Aebi, 230; Bruhn, 249; Filatoff, 268; Levy, 320; Ravinson, 350; Silberstein, 370; Wolff, Hugo, 393.
  and naphto-picric acid. VIII. Steiner, 373.
  group, Synthetic researches in. VIII. Capatina, 252.
  series. VIII. Nüesch, 339.
Rubidium phosphates. VIII. Berg, Eduard, 240.
Rust. V. Andés, 41.
Ruthenium. V. Brizard, 60; Joly and Vèzes, 113.
  Reduction of nitrous compounds of. VIII. Brizard, 248.

S

Safrol, Bromo derivatives of. VIII. Klenk, 307.
Salicin. VIII. Visser, 383.
Salicyl-aldehyde, formaldehyde, and chloral, Condensation of. VIII. Koch, Reinhard, 309.
Salicylic acid. VIII. Desmoulière, 259.
  and alkali persulfates. VIII. Duntze, 262.
  and phosphorus-penta-chlorid. VIII. Schmidt, Otto, 362.
  in food. V. Taffe, 179.
Salicylic ester and phthalyl chlorid. VIII. Wiegand, 391.
Saligenin, Derivatives of VIII. Schütz. 365.
Salol. VIII. Humnicky, 298.
  and phosphorus-penta-chlorid. VIII. Kerkhof, 306.
Salt, Common. V. Gasparis, 90; Hehn, 102; Williamson, 195.
Salt hydrates. VIII. Haberland, 285.
Salt mining. VIII. Fröbrich, 274.
Salt solutions, Mixed. VIII. Hoffmeister, 296.
Salt solutions, Specific heat of. VIII. Teudt, 378.
Salts and sulfur-dioxid in aqueous solutions. VIII. Fox, 270.
Salts, Concentrated. VIII. Hoeren, 295.
Salts in acetone solution. VIII. Schulz, Paul, 366.
Salts, Internal. VIII. Winkelblech, 392.
Salts, Neutral. VIII. Findlay, 268.
Salts of oxy acids and acid oxids. VIII. Prentice, 347.
Sanitary chemistry. V. Bergey, 51; Bruch, 60; Chimica, 67; Dibdin, 75; Dünkelberg, 78; Farnsteiner, 83; Fowler, 86; Fuertes, 89; Haefcke, 98; Kimmins, 115; Naylor, 142; Razous, 157; Richards, 159; Richards and Woodman, 159. VII. Bericht . . . Stadt Stralsund, 220; Technologie sanitaire, 228; Tijdschrift, 228.

Santonic acid. VIII. Stähler, 372.
Santonin. VIII. Stähler, 372.
  Detection of. VIII. Thacter, 379.
Saponin compounds. VIII. Weil, Lud-
Schiff's bases. VIII. Graf, Gottfried, 281.
Scopolia root. VIII. Henschke, 291.
  wig, 387.
Sebacic acid, Salts of. VIII. Gellerstedt, 277.
Secondary cyclic aromatic bases and nitrous acid. VIII. Drazendorff, 261.
Selenic acid. VIII. Pettersson, 345.
elenids, Metallic. VIII. Fonzes-Diacon, 270.
lenio-antimonites. VIII. Pouget, 347.
lenio-arseniates. V. Pouget, 154.
enio-ketones. VIII. Zimmermann, Rudolf, 395.
io-pyrin. VIII. Stein, Max, 373.
ium. VIII. Müller, Max, 335; Pélabon, 149.
  compounds with arsenic and phosphorus. VIII. Clever, 254.
  compounds, Organic. VIII. Stolte, 376.
  Derivatives of. VIII. Schröder, Ernst, 364.
Semicarbazones, Aliphatic. VIII. Foucar, 270.
Senna. VIII. Hiepe, 293.
Sewage. V. Farnsteiner, 83; Fowler, 86; Freysoldt, 88; Haefcke, 98; Wanklyn, Alfred, 191.
Shale tar. VIII. Nefgen, 337.
Silicates. V. Ricci, 159. VIII. Pfeil, 345.
  and boron-trioxid. VIII. Weber, Hermann, 386.
Silico-molybdates. VIII. Asch, W., 233.
Silicon. VIII. Haasy, 285; Lebeau, 317.
  mpounds, Organic. VIII. Kornstaedt, 311.
  ificial. V. Süvern, 179.
  V. Collins, 70.
  logen acids. VIII. Jouniaux,
Silver, Complex salts of. VIII. Hellwig, 290.
  Hypothetical subchlorid of. VIII. Heyer, 292.
Silver-iodid. VIII. Scholl, 364.
Soap and candles. V. Hurst, 110; Watt, 191; Wiltner, 195.
Societies, Chemical. III. Bolton, 13.
Soda. V. Billon, 54; Lunge, 130.
Sodammonium and metalloids. VIII. Hugot, 298.
Sodium amalgam. VIII. Westhausser, 390.
Sodium benzoyl-acetic-ester and ethylene-bromid. VIII. Arndt, 233.
Sodium cacodylate. VIII. Badel, 234.
Sodium carbonates, Hydrates of. VIII. Epple, 265.
Sodium chlorid. VIII. Briner, 248
  and sodium hydrate, Electrical conductivity of mixtures of. VIII. Demolis, 258.
Sodium hydroxid. VIII. Sacher, 357.
Sodium, Mixtures of carbonates, silicates, hydrates, and sulfids of. VIII. Lohöfer, 323.
Sodium phenate, Hydrolysis of. VIII. Behr, 239; Müller, Wilhelm, 335.
Sodium sulfite, Oxidation of. VIII. Bigelow, 242.
Sodium thio-sulfates. VIII. Oettingen, 341.
Sodium vanadates. VIII. Rex, 351.
Soils, Cohesive quality of. VIII. Piedzicki, 346.
Solanin. VIII. Meyer, Gustav, 330.
Solubility. VIII. Oberländer, 340.
Solutions, Chemistry of. V. Bruni, 61; Calzolari, 64; Liesegang, 127; Ogg, 145; Pfeffer, 151. VIII. Bandke, 235; Jüttner, 303; Steinwehr, 374.
Sorbic acid. VIII. Weissenborn, 388; Wolff, 393.
Sorghum. V. Collier, 70; Stewart, 177.
Specific gravity. V. Dumesnil, 78.
Spectroscopy. I. Tuckerman, 5. V. Fraunhofer, 86; Landauer, 121; Lefèvre, 124; Lockyer, 128. VIII. Schuler, 366.

Spectrum analysis. V. Formanek, 85.
Stannous chlorid, Aqueous solution of. VIII. Kowalevsky, 311.
Starch. V. Borght, 58; Wiley, 194. VII. Zeitschrift für Stärke-Industrie, 229. VIII. Goldmann, Felix, 279.
Starch factories, Purification of waste water from. VIII. Seelos, 367.
Steel. I. Brearley, 2. V. Brearley, 60; Colby, 70; Hoff, 106; Phillips, Francis, 152.
Stereochemistry. V. Freundler, 88; Hantzsch, 99; Hoff, 106; Meusel, 136; Scholtz, 169; Traube, 184; Vaubel, 187; Wedekind, 191, 192.
Stilbene. VIII. Wetzlich, 390.
  Bromin derivatives of. VIII. Jahrmarkt, 301.
  Dibromids of. VIII. Holtschmidt, 296.
  series, Ketone-chlorids and methylene-quinones in. VIII. Fries, Karl, 273.
Stoichiometry. I. Zeitschrift, 5. V. Biechele, 53; Biehringer, 53; Boeke, 56; Struniz, 178.
Stones, Artificial. (*See also* Cement.) V. Stöffler, 178; Tetmajer, 181.
Strychnin. VIII. Doctor, 260.
  Action of the electric current on. VIII. Oertel, 340.
  and alkali-persulfate. VIII. Oertel, 340.
  Brominated acids derived from. VIII. Bründelmayer, 249.
Styrax, Oriental and American. VIII. Itallie, 299.
Styrol, Derivatives of. VIII. Fanto, 267.
Styrols. VIII. Pierstorff, 346.
Suberone. VIII. Vollenhoven, 384.
Succinic acid, Alkylated. VIII. Schleicher, 361.
Succinic acid, Halogen substituted, and amins. VIII. Lutz, 324.
Succinic acid, Halogen substituted, and ammonia. VIII. Lutz, 324.
Succinic acid, Phenyl and cresyl esters of. VIII. Bernstein, 241.
Succinimids. VIII. Stern, 375.
Sugar. I. Jahresbericht, 3. III. Bittmann, 13; Horsin-Déon, 17; Légier, 17; Lippmann, 18. V. Abel, 38; Baron, 47; Bass, 48; Bates, 49; Bersch, 52; Broquet, 60; Burgh, 63; Cassaux, 65; Césaro, 66; Chapelle, 66; Claassen, 68; Collier, 70; Cuadrado, 73; Cukrownictwo, 73; Dienert, 75; Foster, 86; Grandeau, 95; Gröger, 96; Helot, 102; Horsin-Déon, 108; Légier, 124; Léon, 125; Leplay, 126; Maquinne, 132; Meusser, 136; Myrick, 141; Niccol, 143; Pellet, 149; Pepper, 150; Prinsen, 155; Reed, 157; Rigby, 160; Rümpler, 163; Sachs, 164; Siderski, 173; Spencer, 175; Stammer, 176; Stewart, 177; Stift, 177; Stohmann, Rümpler, 178; Taccani, 179; Tucker, 185; Venturoli, 187; Vibrans, 187; Weatherly, 191; Wiley, 194. VII. Industrie betteravière, 224; Jahresbericht über die Untersuchung, 225; Kalendarz dla Cukrownikow, 226; Verzeichniss, 228; Zucchero italiano, 229. VIII. Brocard, 248; Gonnermann, 180; Klimmer, Martin, 308.
  Oxidation of. VIII. Ollendorff, 341.
  solutions, Influence of the addition of salt on the optical activity of. VIII. Tomartschenko, 380.
Sulfaminic acids. VIII. Haugwitz, 288.
  Organic. VIII. Wynen, 394.
Sulfates. V. Geschwind, 92.
  and carbons. VIII. Kunheim, 314.
  in drinking water. VIII. Paul, Felix, 344.
  of sodium, potassium, and aluminium, Action of carbon and sulfur on. VIII. Melcher, 329.
Sulfids, Aromatic. VIII. Forgan, 270.
Sulfids, Metallic. VIII. Mourlot, 333.
Sulfimid. VIII. Holl, 296.

ates and sulfur-chlorid. VIII. ornung, 297.

ids, Aromatic. VIII. Asriel, 33; Bamberg, 235; Berendes, 40.

s, Double. VIII. Steinhäuser, 374.

-cobalt-ammonium compounds. VIII. Grüger, 283.

-antimonites. VIII. Pouget, 347; Seesemann, 368.

-arseniates. V. Pouget, 154.

-arsenic acid. VIII. Jenny, 302.

-carbanilid. VIII. Stenz, 374.

-carbazic acids and allyl thio-carbimid. VIII. Wolpert, 393.

cyanates, Metallic. VIII. Cuvier, 256.

yanic acids. VIII. Cuvier, 256.

nolybdates. VIII. Asch, Dagobert, 233.

ated aromatic compounds. VIII. on, 275.

romatic. VIII. Forgan, 270; asdermadjian, 343.

Sulfonic acids. VIII. Wilke, 391.

Aromatic and aliphatic, and phenyl-iso-cyanate. VIII. Vallée, 383.

Hydrazids of. VIII. Lorenzen, 323.

Organic. VIII. Wynen, 394.

Sulfo-oxy-arsenates. VIII. Rumpf, 357.

Sulfo-phosphazo compounds. VIII. Böhme, 244; Müller, Friedrich, 334.

Sulfo-phthalic acid. VIII. Pluss, 346.

Sulfo-silicates. VIII. Haasy, 285.

Sulfur. V. Billon, 53. VIII. Petri, 345; Rabe, Wilhelm, 349.

Sulfur compounds. VIII. Tobiæson, 380.

New organic. VIII. Ewerlöf, 266.

Sulfur springs. VIII. Dieulafé, 260; Hallé, 286.

Sulfur-dioxid. V. Harpf, 100. VIII. Michelson, 331.

and ammonia. VIII. Schumann, Hans, 366.

Sulfuric acid. V. Petitgout, 151.

Derivatives of, and hydrogen fluorid. VIII. Kappeller, 305.

Electrolysis of, with lead anodes. VIII. Fischer, Ferdinand, 269.

Sulfur-selenium-tellurium group. VIII. Steiner, 374.

Surface tension of organic substances. VIII. Oettgen, 341.

Symbols, Chemical. III. Gessmann, 15.

Syntheses, Chemical, by means of sunlight. VIII. Roerdansz, 354.

Synthetic compounds. VIII. Geipel, 276.

T

Tables for chemical calculations. II. Gimbel, 7; Küster, 8; Meade, 10; Tommasi, 10; Woy, 11. V. Béthoux, 52; Bizarri, 55; Hallerbach, 98; Küster, 119; Waddell, 189.

Tanning. V. Borgmann, 58; Carr, 65; Haenlein, 98; Hegel, 102; Jettmar, 112; Modern American . . ., 139; Procter, 155; Schroeder, 170

Tartaric acid. V. Carles, 65.

Complex salts of. VIII. Itzig, 300.

Tautomeric compounds. VIII. Abeatici, 230.

Technical chemistry. I Addressbuch, 1; Chemisch-technisches Repertorium, 2; Patent Office, 4. II. Bailey, 6; Billon, 6; Küster, 8; Lefèvre, 9; Villavecchia, 11; Villon, 11. III. Berthelot, 12; Billon, 13. V. Auskunftsbuch, 46; Bersch, 52; Blount and Bloxam, 56; Bolley, 57; Capellaro, 64; Dammer, 74; Dyson, 79; Fischer and Wagner, 84; Gabba, 89; Glahn, 94; Groves, 97; Herm, 103; Kersting, 115; Le Chatelier, 124; Lunge, 130; Lupano, 130; Müller, 140; Muroe and Chatard, 141; Oppelt, 146; Ost, 146; Parnicke, 148; Peters, Fredus, 151; Pilat, 153; Razous, 157; Spennrath, 175; Thorpe, 182; Trillat, 185; Waeber, 190; Walter, 191; Wichelhaus, 193; Witt, 196. VII. Chemical Trade Review, 223;

Technical chemistry. [Cont'd.] Chemik Polski, 223; Chemisch-technisches Repertorium, 223; Chimica industriale, 223.

Telluric acid. VIII. Prause, 347.

Tellurium. VIII. Gutbier, Alexander, 284; Heberlein, Kuno, 289; Köthner, 310; Müller, Max, 335, Staudenmeier, 373.

  Derivatives of. VIII. Schroeder, Ernst, 364.

  derivatives of phenol-ethers and ketones. VIII. Rust, 357.

Telluro-phenol-ether. VIII. Rohrbaech, 355.

Terebic acid, Salts, amids and esters of. VIII. Ekman, 264.

Terephthalic aldehydes. VIII. Oppenheimer, Hugo, 341.

Terpene compounds. V. Charabot, 66.

Terpene-hydrocarbon. VIII. Thölke, 379.

Terpenes. V. Heusler, 104; Neumann, 143. VIII. Bauer, Carl, 237.

Tertiary bases, Oxidation of. VIII. Auerbach, M., 234.

Test papers. V. Cohn, 70.

Tetra-amido-benzene, Symmetrical. VIII. Schedler, 360.

Tetra-amido-phenol, Derivatives of. VIII. Geese, 276.

Tetra-bromo-quinolin. VIII. Frank, Leonhard, 271.

Tetra-chloro-phenates. VIII. Grosfillex, 283.

Tetra-chloro-terephthalic acid. VIII. Friedemann, 273.

Tetra-decyl-acetylene, Derivatives of. VIII. Heizmann, 290.

Tetra-hydro-carvone, Derivatives of. VIII. Oehler, 340.

Tetra-hydro-carvone-isoxim. VIII. Fresenius, Ludwig, 272.

Tetra-hydro-iso-quinolin and hydrogen peroxid. VIII. Maass, Emil, 325.

Tetra-hydro-naphthoyl-piperidin. VIII. Roth, Walter, 356.

Tetra-hydro-quinolin and hydrogen peroxid. VIII. Maass, Emil, 325.

Tetra-hydro-quinolin and pyro-phosphoryl. VIII. Schütte, Wenzel, 365.

Tetra-hydro-quinolin-benzo-carboxylic acids. VIII. Endres, 265.

Tetra-iodo-pyrrol. VIII. Jouve, 303.

Tetra-ketones, Aromatic. VIII. Wesenberg, 390.

Tetra-methyl-dipyridyl, Synthesis of. VIII. Hutzler, 298.

Tetra-methylene-dicarboxylic acid, Hydrazids and azids of. VIII. Grandel, 281.

Tetra-nitro-phenol. VIII. Blumenthal, 244.

Tetra-phenyl-cyclo-pentane. VIII. Auerbach, 234; Fritzsche, 274.

Tetra-phenylene-succinic acid. VIII. Nickell, 338.

Tetrazol. VIII. Paradies, 343.

Tetronic acid. VIII. Gabler, 275; Herold, 291; Junker, 304.

Text-books. (*See also* Organic chemistry and Inorganic chemistry.) V. Alvarez, 41; Baskerville, 48; Böttger, 57; Bouant, 59; Boudréaux, 59; Bryk, 61; Bussard, 63; Cheetham, 66; Chesneau, 67; Colombo, 71; Cook, 71; Cooper, 71; Corbin, 72; Daccomo, 73; Dannemann, 74; Dennis, 75; Dobbin, 76; Doijer van Cleeff, 76; Doolan, 77; Drincourt, 77; Düll, 78; French, 87; Gautier, A., 90; Gautier, H., 90; Geissler, 91; Gerlach, 92; Gill, C., 93; Giran, 94; Glinzer, 94; Gregory, 96; Gröndal, 97; Hemmelmayr and Brunner, 102; Hill, Henry, 105; Hoek, 105; Hosacus, 108; Humpert, 109; Javet, 112; Joannis, 112; Johannesen, 113; Jörgensen, S. M., 113; Joly, 113; Knight, 116; Koppeschaar, 118; Krobatin, 118; Kühling, 119; Laar, 119; Langlebert, 122; Lassar-Cohn, 123; Lewes, 126; Lezioni, 127; L'Huillier, 127; Lipp, 127; Long, 128; Luff

Wine. [Cont'd.] messa, 64; Carles, 65; Casto, 66; Cazalis, 66; Cillis, 68; Epernay, 81; Evesque, 82; Fillol, 83; Floret, 85; Gaber, 89; Goldschmidt, 95; Goupil, 95; Lajoux, 120; Loévi, 128; Magnier, 131; Marescalchi, 132; Mondini, 139; Müller-Thurgau, 140; Ottavi, E., 147; Ottavi and Marescalchi, 147; Roussel, 163; Saporta, 167; Springuel, 176; Viglietto, 187; Weiss, 192.

Wood. V. Stropa, 178.
  Distillation of. V. Billon, 53.
  finishing. V. Mellmann, 135.
  Preservation of. V. Dumesny, 78.

Woodpulp. V. Hubbard, 109. VIII. Fittica, 269.

Wool. V. Joclét, 112,

X

Xanthone, Oxim and phenyl-hydrazone of. VIII. Roeder, Paul, 354.

Xeronic acid. VIII. Fromme, 274.

Xylal-phthalid. VIII. Bethmann, 241.

Xylenes. VIII. Thesmar, 379.

Xylenol, Bromin derivatives of. VIII. Burrows, 251.

Xylenols and chloro-acetal. VIII. Schröder, Robert, 365.

Xylidin. VIII. Ledderboge, 318.
  derivatives. VIII. Brand, Philibert, 247.

Xylitones, Isomeric. VIII. Blach, 243.

Xylyl-hydroxylamin. VIII. Baum 237.

Y

Yeast. (*See also* Fermentation.) V. Jörgensen, A., 113; Stenglein, 177. VIII. Geret, 277.

Yeast cells and sulfur-dioxid in saccharose solutions. VIII. Fernbacher, 268.

Yttrium. VIII. Marc, Robert, 326.

Z

Zinc. VIII. Iggena, 298.
  Cyanids of. VIII. Loebe, 322.
  Estimation of. V. Hill, 104.
  Molybdates of. VIII. Manassewitsch, 326.

Zinc-sulfate. VIII. Baumann, Carl, 238.

Zirconium. VIII. Baskerville, 237.

Thionyl-amins and phenyl-hydroxylamin. VIII. Petow, 345; Reimann, 351.
Thionyl-amins and secondary and tertiary amins. VIII. Francke, 271.
Thiophene sulfonic acid and bromin. VIII. Marienhagen, 327.
Thiophene sulfonic acid and nitric acid. VIII. Marienhagen, 327.
Thio-phenic acid. VIII. Thyssen, 380.
Thio-phenol. VIII. Bamberg, 235.
Thiopyrene. VIII. Bindewald, 242; Rossmann, 350.
Thio-semicarbazids, Action of aldehydes and ketones on. VIII. Collosens, 255.
Thio-semicarbazids and aldehydes. VIII. Krey, 312; Obermiller, 340.
Thio-semicarbazids and nitrous acid. VIII. Lusch, 324.
Thio-semicarbazids, Chloro-substituted. VIII. Grosch, 282.
Thio-semicarbazids, Isomerism in. VIII. Holzmann, Hermann, 297.
Thio-sulfates. VIII. Gutmann, 284; Jacob, Hugo, 300.
Thio-sulfinates and sulfur-chlorid. VIII. Hornung, 297.
Thio-sulfuric acid, Organic compounds of. VIII. Wahlstedt, 385.
Thorium. V. Koppel, 118. VIII. Davidsohn, 257; Shilling, Joh., 361.
  compounds. VIII. Lesinsky, 319.
  double salts. VIII. Samter, 358.
  Nitrates of. VIII. Jacoby, Richard, 300.
  salts. VIII. Kauffmann, 305.
Threose. VIII. Kohn, 311.
Thujamenthone. VIII. Freist, 272.
Thujon. VIII. Adolph, 230; Freist, 272.
Thymol-quinones. VIII. Schoen, 363.
Thyroid gland. VIII. Oswald, 342.
Tin. V. Hoff, 106; Mennicke, 135.
  Molecular compounds of the tetrahalids of. VIII. Pfeiffer, Paul, 345.
Tin alkyls, Molecular compounds of the halogen derivatives of. VIII. Pfeiffer, Paul, 345.
Titanic acid, Compounds of. VIII. Schütte, 365.
Titanium compounds, Organic. VIII. Kornstaedt, 311.
Tobacco. V. Laurent, 123; Mémorial, 135.
Tolacylamins. VIII. Weppner, 389.
Tolane, Dibromids of. VIII. Holtschmidt, 296.
Toluene, Action of ether and aluminium chlorid on. VIII. Eckert, 263.
Toluene, Action of succinic anhydrid and succinyl chlorid on. VIII. Doll, 261.
Toluene, Azo and azoxy derivatives of. VIII. Pitschke, 346.
Toluene-disulfonic acids. VIII. Håkånsson, 286.
Toluene-sulfaminic acids, Isomeric. VIII. Brune, 250.
Toluene-sulfonic acids. VIII. Berg, Lars, 240; Vallin, 383.
Toluene, Vapor tension of. VIII. Toennies, 380.
Toluic acid. V. Scherpenzeel, 167.
  Brominated. VIII. Schultz, 366.
Toluidin and chlorin. VIII. Schneider, Wilhelm, 363.
Toluidin and diazo compounds. VIII. Mehner, Hans, 328.
Toluidin, Basic nitroso compounds of. VIII. Forsberg, 270.
Toluidin-sulfonic acids. VIII. Brune, 250.
Toluyl-biguanid. VIII. Beutel, 242.
Toluyl-dimethyl-acetic acid. VIII. Krüger, Ernst, 313.
Toluyl-methyl-ethers. VIII. Gotsch, 280.
Tolyl-hydrazin, Phthalyl derivatives of. VIII. Arnold, Carl, 233.
Toxicology. (*See also* Forensic chemistry.) I. Nederlandsch, 4. III. Saliceto, 21. V. Alessandri, 39; Arnold, 42; Austin, 46; Blücher, 56; Capel, 64; Fröhner, 88; Gauthier, 90; Glaser, 94; Holland, 107; Kionka, 115; Klein, 115; Kobert, 116; Kunkel, 119; Lebbin, 123; Levi,

Toxicology. [Cont'd.] 126; Mann, J. D., 132; Ogier, 145; Perando, 150; Poisons, 153; Riassunto, 159; Springer, 176; Valentini, 186; Wefers Bettink, 192. VIII. Pagel, 343; Strzyzowski, 377.
agacanth. V. Dreyfus, 77. VIII. Widtsoe, 390.
cetone-amin group and nitrous acid. VIII. Groschuff, 282.
yl glycerin esters of saturated monobasic acids. VIII Scheii 360.
amin cobalt salts. VIII. Bindschedler, 243.
min compounds. VIII. Grün, Ad., 283.
zins. VIII. König, 309.
compounds. VIII. Noll, 339.
o-anethol-dibromid and sodium ethoxid. VIII. Hoering, 295.
-bromo-phenol-bromid. VIII. Eichwede, 264.
Tri-bromo-propyl-aldehyde. VIII. Stock, 375.
Tri-bromo-quinolin. VIII. Frank, Leonhard, 271.
Tri-carballylate of sodium and acetic anhydrid. VIII. Roth, Ernst, 356.
Tri-chloro-anilin. VIII. Kuhlmann, 314.
Tri-chloro-quinone and amido-acetic acid. VIII. Barin, 235.
Tri-ethyl-meta-xylidin. VIII. Landsberger, 316.
Tri-ethyl-para-toluidin. VIII. Landsberger, 316.
Tri-glycerids. VIII. Velsen, 383.
Tri-ketones. V. Barschall, 48. VIII. Rossbach, 356.
Tri-methoxy-phenanthrene. VIII. Seydel, 368.
Tri-methyl-amino-acetone-chlorid. VIII. Furnée, 275.
Tri-methyl-benzaldazin. VIII. Harding, 287.
Tri-methyl-dibenzyl-amin. VIII. Franzen, 271.
Tri-methyl-dibenzyl-hydrazin. VIII. Franzen, 271.
Tri-methylene-diamin, Derivatives of. VIII. Keil, 305.
Tri-methyl-quinolone. VIII. Rigaud, 352.
Tri-nitro compounds, Aromatic. VIII. Koehler, Alb., 309.
Tri-nitro-chloro-benzene and pyridin. VIII. Henser, Gerhard, 292.
Tri-nitro-naphthol, Derivatives of. VIII. Misslin, 332.
Tri-nitro-tri-phenyl-methane. VIII. Mauz, 327.
Tri-phenyl-arsin, Nitro and amido compounds of. VIII. Ludwig, Kurt, 324.
Tri-phenyl-cyclo-pentane, Synthesis of. VIII. Newman, 338; Weber, Franz, 386.
Tri-phenyl-ethane. VIII. Kuntze-Fechner, 314.
Tri-phenyl-ethanone. VIII. Flemming, Paul, 269.
Tri-phenyl-methyl-methane. VIII. Bamberg, 235; Mauz, 327; Zundel, 396.
Tri-phenyl-phosphin, Derivatives of. VIII. Köhler, Edwin, 309.
Tri-phenyl-pyridin, Synthesis of. VIII. Newman, 338.
Tri-phenyl-vinyl-alcohol. VIII. Flemming, Paul, 269.
Tri-phosphoric acid. VIII. Glühmaron, 278.
Tri-tolyl-arsin, Nitro and amido compounds of. VIII. Ludwig, Kurt, 324.
Tri-tolyl-stibins. VIII. Genzken, 277.
Tropylamins. VIII. Müller, Wilhelm, 335.
Truxone. VIII. Manthey, 326.
Tungstates. VIII. Eltzbacher, 264.
Tungsten. VIII. Defacqz, 258; Hommel, 297.
  and chlorin compounds of. VIII. De Laval, 258.
Turmalin. VIII. Beermann, 238.
Tyrosin. V. Harlay, 99.

U

Ultramarine. VIII. Hoffmann, R., 295.
Umbelliferone. VIII. Weber, 386.
Umbelliferone-carboxylic acid. VIII. Graeger, 280.
Undecylic acid. VIII. Fendler, 268; Seldis, 368.
Unsaturated acids, Derivatives of. VIII. Tritschler, 381.
  Synthesis of. VIII. Hirsch, Sylvain, 294.
Unsaturated compounds. VIII. Speyer, 372.
Uranium. V. Dittrich, 76; Oechsner, 144. VIII. Aloy, 231.
Uranium-tri-chlorid. VIII. Gembicki, 277.
Uranyl salts, Absorption of. VIII. Deussen, 259; Dittrich, 260.
Urazin. V. Busch, 63.
Urazol series. VIII. Grohmann, 282.
Urethanes. VIII. Dent, 259.
Uric acid and iodic acid. VIII. Bouillet, 246.
Uric acid group. VIII. Lindt, 321.
Urine. Dommergue, 76; Drevet, 77; Elsner, 81; Holland, 107; Laache, 119; Lamanna, 120; Lassar-Cohn, 123; Liotard, 127; Long, 129; Mercier, 136; Neubauer, 142; Ogden, 145; Purdy, 156; Rieder, 160; Wolf, 196; Yvon, 198.
  Acidity of. VIII. Jegou, 302.

V

Vacuum, Distillation in. VIII. Wilke, 391.
Valerian. VIII. Sikorska, 369.
Valeric acid. VIII. Hille, 293.
Vanadium. VIII. Behrendt, 239.
Vanillin. V. Sumuleanu, 179.
  Ortho-nitro derivatives of. VIII. Sumuleanu, 377
Vesuvianite. VIII. Weingarten, 387.
Vinegar. V. Bersch, 51; Boizard, 57; Casto, 66; Franche, 86; Goupil, 95.
Vinyl-acetic acid. VIII. Sonneborn, 371
Vinyl-diacetone-amin group and nitrous acid. VIII. Groschuff, 282.
Vinylidene-oxanilid. VIII. Ansel, 232.
Violuric acid group, Salts of the. VIII. Isherwood, 299.
Volumetric analysis. (*See also* Analytical chemistry.) V. Abegg, 38; Lagatu, 120; Schimpf, 168; Sundvik, 179; Sutton, 179; Thornton, 182; Wills, 195; Winkler, 195. VIII. Wagner, Julius, 385.

W

Waste products, Utilization of. V. Koller, 117; Naylor, 142.
Water. V. Blücher, 6; Cowell, 72; Engelhardt, V., 81; Fischer, F., 84; Goupil, 95; La Coux, 120; Lavoisier, 123; Malméjac, 132; Mason, 133; Mez, 137; Ohlmüller, 145; Pignet, 152; Pozzoli, 155; Stoppani, 178. VII. Wasser, 228. VIII. Hoffmann, Aug., 295; Malméjac, 326.
  Potable. V. Analyse, 41; Baker, 47; Baucher, 49; Bonjean, 58; Boursault, 59; Fuertes, 89; Guichard, 97; Kabrhel, 114; König, 116; Lajoux, 120; Mele, 135; Mourgues, 140; Puerta, 156; Rideal, 160; Thresh, 182; Turneaure, 186; Zune, 199. VII. Mittheilungen, 226. VIII. Dominique, 261; Sarcos, 358.
  Purification of. V. Dünkelberg, 78; Kröhnke, 118. VIII. Arndt, Hans, 233; Cochenhausen, 254.
Watergas. V. Clauss, 69; Geitel, 91. VIII. Vogelensang, 384.
Wax. V. Kitt, 115; Lewkowitsch, 126; Sedna, 171.
White clover seeds. VIII. Wübbena, 394.
Wine. III. Ellis, 14. V. Anweisung, 42; Astruc, H., 44; Barreto, 48; Barth, 48; Bedel, 49; Bigelow, 53; Böttner, 56; Canta-

NON-CIRCULATING

JUN - 6 1974

Stanford University Library
Stanford, California

In order that others may use this book, please return it as soon as possible, but not later than the date due.